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- LONGFORD CASTLE, WILTSHIRE (October 21)
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THE

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THE MARKET FRUIT GARDEN.
THE PROLONGED DROUGHT.

IN the period between May 3 and June 16 the rainfall in my district amounted to only 0.24 in. Not one of the numerous thunderstorms which occurred during the period visited this district, though two or three slight ones were felt a few miles away. As a rule, they appear to have missed the principal fruit districts, where they were urgently needed. The injury done by the drought is incalculable, most of it being quite irreparable by the bounteous rainfall which followed. The Strawberry crop, where the plants are cultivated upon too large a scale for watering to be attempted, was reduced to meagre dimensions, the plants on some soils being almost scorched before they had matured half their fruits that an abundant amount of blossom had set. The yellowing and dropping of Plums became worse and worse, Cherries dropped freely, a very large proportion of the Apple blossom failed to set fruit, and both Black and Red Currants began to colour before they had attained to their full size. It

is to be hoped that the rain came soon enough to save Raspberries from depreciation approaching the ruin of the crop, though some loss is inevitable.

APHIDES AND RED SPIDER.

It is well known that the aphid attack on Plums and Apples has been one of the worst experienced, and that the injury it has done is enormous. To what extent the loss of fruit is attributable to drought alone, and what proportion to aphides, cannot be determined. But there is another pest of which very little has been heard in relation to these trees, although it is accountable either alone or in combination with the aphid and the drought for the dingy appearance of much of the foliage of Plums and Apples. I refer to red spider, which I have never before seen on out-door fruit to anything like the extent prevalent this season. The drought was most favourable to this pest, which does not flourish under damp conditions. In my case its attack is much worse on Plums than on Apples. The under-sides of leaves of Plums and some varieties of Apples were thickly covered with this pest in the early part of June, and there was a good deal of defoliation in consequence of the attack before the end of that month. The only out-door fruit commonly supposed to be adversely affected by red spider is the Gooseberry.

ABORTIVE APPLE BLOSSOM.

Last season the extensive failure of the Apple blossoms to set fruit was attributed to a lack of sunshine and warmth in the summer of 1909, causing unripened fruit spurs. Possibly the same cause is partly accountable for the like, though less general, failure of the present season, as the summer of 1910 was as cold and sunless as that of 1909. In support of this theory is the fact that the failure on young trees, which needed more sunshine to ripen their fruit spurs, in consequence of their vigorous wood growth, than mature trees, is much the more common in my plantations. The yield of most varieties, planted five years ago in some cases and six years in others, in spite of abundant blossoming, will be extremely disappointing, whereas there is quite an average crop on mature trees. On the other hand, as evidence that the failure may be attributed mainly to drought and insect attacks, there is the fact that early blossoming varieties, which set their fruit before the full severity of the drought and aphid attack was reached, have a much better show of fruit than the late bloomers. In some reports the failure is attributed to injury arising from the Apple sucker; but this was certainly not the cause in my case, as I had not at all a bad infestation of this pest, and it was dealt with effectually by spraying just before the blossom opened, and where necessary a second time after the fall of the petals.

THE FRUIT HARVEST.

As already indicated, the Strawberry crop was a partial failure, and a scarcity of Gooseberries was indicated by high

prices. Almost all accounts describe the Black Currant crop as a very short one, while Red and White Currants appear to be full crops. Cherries and Pears failed badly on the whole. Plums and Apples vary greatly in different districts, and even in different orchards in the same district. On the whole, Plums may possibly amount to three-fourths of an average yield, notwithstanding the dropping of many fruits. This estimate is, however, doubtful, as much fruit which promised to mature, some of it nearly half-size at the time of writing, is being knocked off by the rains. The Apple crop appears to be much below the average in Kent and in some other Apple-growing counties, and it is doubtful if it will reach average dimensions in the country as a whole. The drought caused much of the fruit to colour prematurely, but whether the rainfall came in time to remedy this remains to be seen.

THE SEASON AND YOUNG TREES.

In the case of both Apple and Plum trees planted last winter, the drought and aphid attack were very destructive, the drought preventing the trees from growing strongly and overcoming the pest. An early aphid attack did much injury to a field of Apples planted in the winter of 1909-10; but by means of two sprayings and stripping off the curled leaves the injury was much mitigated. The greatest damage has been done to Beauty of Bath Apples, planted in 1908-9. This variety is especially subject to aphid, and the effect of the attack upon it, in spite of two sprayings, is very pronounced. Many of the young trees, which were pictures of vigorous growth in the spring, had all their shoots covered with tightly-curved leaves before the end of June, while others were partially affected in a like manner. Those which suffered most can never form good trees, in my opinion, and it may be necessary to dig them up, and plant new trees, or graft them afresh. The masses of curled leaves have been stripped off the shoots by hand and thoroughly crushed, as this plan was found beneficial in the summer of 1909; and in some cases the stripped part has been cut back to a sound bud by way of experiment. Worcester Pearmain is also much injured, and other varieties have suffered to a less extent.

POLLINATION.

It is strange that fruit growers should have had to wait till the year 1911 to see the question of the pollination of orchard trees made a prominent subject. Ever since market fruit-growing became extensively practised in this country, Apples and Plums of the same varieties have been grown in large blocks, and this has been the case also in nurseries. There have been, therefore, abundant opportunities of observing which varieties are not self-fertile, but need the pollen of some other variety to set the blossoms. We are now told that we should not plant more than two or three rows of any variety of the Apple without a break, and this is also true in the case of a few kinds

of Plums. But this is very inconvenient on large plantations, in relation particularly to spraying, thinning the fruits, and gathering them, because different varieties require different treatment or different times for treatment, and the employés are often unable to distinguish varieties, so that constant supervision would be needed if the recommendation were adopted. A list of self-pollinating varieties of Apples and Plums would be very valuable. I have several blocks of five to eight rows of the same Apples in

Jubilee, which is not in blossom until Lord Grosvenor has finished flowering, and there are four rows of the former, 12 feet apart, there are 216 feet between the last row of Lord Grosvenor and Golden Spire, the nearest Apple of any use for pollinating purposes. Royal Jubilee also must be self-fertile, as it is not in full blossom until every other variety that I grow has passed that stage, and yet it fruits well in some seasons. In a plantation, too young to test fruitfulness, as the rows are very short, there



FIG. 1.—SCHIZANDRA CHINENSIS: FLOWERS ROSE-COLOURED.

mature or nearly mature plantations, and I have not seen any case of failure to fruit. Cox's Orange Pippin is reported to be not self-fertile; but I have two blocks of eight rows of that variety, and the fruit is set in the middles of both blocks as freely as on the outsides. Lord Grosvenor must be self-pollinative, as I have 14 rows, where a field narrows into a corner of that variety in one block, with no fruit trees on one side of the block. The last row is 168 feet from any other variety of Apple, and, as the nearest is Royal

are 13 rows of Beauty of Bath, 14 of Worcester Pearmain, and 12 of Allington Pippin in solid blocks. Unless these are all self-pollinating, they, or at least one of them, will teach a lesson. Among Plums, Black Diamond is said to be not self-fertile. That seems to me probable, as I have a number of trees of this variety planted between Apples, and quite distant from any other Plums, and there is not a fruit on one of them. Other varieties no older are bearing a few fruits. *A Southern Grower.*

SCHIZANDRA CHINENSIS.

SCHIZANDRA CHINENSIS (see fig. 1) is a native of China and Japan, and was introduced to England in 1860. In a wild state the plant climbs over trees to a height of 20 or 30 feet. The long, reddish, slender branches are clothed rather sparsely the first year with obovate or oval leaves 2 to 4 inches long, remotely and finely toothed, and glabrous except for scurfy down on the veins beneath. On the year-old branches the leaves are crowded on short shoots, at the base of which the flowers appear in April. They are $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter, solitary, on slender stalks about 1 inch in length; the sepals and petals, about nine in number, are similar, being rose-coloured, very much cupped and incurved. The fruits are more attractive than the flowers. The portion of the flower bearing the carpels becomes elongated after fertilisation takes place, becoming ultimately 2 to 6 inches long, and bearing scarlet berries in a sort of spike. This remarkable elongation of the ovary-bearing part is characteristic of the genus. The berries remain for a long time on the plant.

The genus belongs to the Magnoliaceæ, and *S. chinensis*, in common with most members of this order, is strongly fragrant. Not only are the flowers sweetly scented, but the wood itself, especially when dried, has a pleasant, spicy perfume. Recent exploration in China has added several new species to collections, and some of them are very promising. One of the most interesting is known as *S. Henryi* (see fig. 55 in *Gardeners' Chronicle*, August 26, 1905), introduced by Mr. E. H. Wilson from Central China, and now growing in the Coombe Wood Nursery of Messrs. James Veitch & Sons. On the whole, the genus is, both for interest and beauty, worthy of more notice from planters than it has hitherto received. For the opportunity of figuring *S. chinensis* we are indebted to Mr. T. Smith, of Daisy Hill Nursery, Newry.

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT MESSRS. J. & A. A. McBEAN'S NURSERY.

MANY years ago, Mr. A. A. McBean made a special study of *Odontoglossum crispum*, its habits and requirements, and proved the value of this beautiful Orchid as a decorative plant and a subject for furnishing cut blooms. In the original block of three large, span-roofed houses, each more than 100 feet in length and loftier than most cool Orchid houses, the plants were grown to perfection, and Mr. McBean set the standard of excellence in *Odontoglossum* culture. From the commencement until now the Cooksbridge Orchids have progressed, and this season the three large houses throughout the whole of the month of May and early June have been filled with flowers of *Odontoglossum crispum*. In point of vigour the plants are remarkable, possessing large, shiny bulbs, thick, fleshy leaves and stout flower-spikes, carrying from 12 to 20 or more grand white flowers, some of them tinged with pink and often with the backs of the petals purple. Some of the finest blotched varieties of *Odontoglossum crispum*, as for example *O. crispum* Mrs. J. McBean, have been flowered in this nursery, though the leaning of Mr. McBean is towards exceptionally fine white or sparsely-spotted typical forms. The finer novelties of this class are said to be rarer than those of the blotched forms. A white flower of thick substance and exceptionally fine form, having an occasional purple spot on the sepals, was seen on the occasion of my visit. *O. crispum* *virginale* is a wholly white variety, with a fine crimped labellum, whilst *O. crispum* *Snow Queen* is another chastely beautiful flower. There were also some forms of *O. ardentissimum*, showing all the variations

seen in *O. crispum*, from heavily-blotched, to pure white blooms. At the end of one of the houses was a group which included *Odontoglossum Thompsonianum*, *O. Clytie*, and other hybrids of *O. Edwardii*, with scarlet *Odontodas*, *Cochliodas*, *Odontoglossum amabile*, *O. harvengtense*, and other choice Orchids. In the smaller houses was a general collection of *Odontoglossums* flourishing equally as well as the plants of *O. crispum* and blooming freely. Of *O. Harry-anum* there were some fine dark forms in bloom, and several plants of *O. luteo-purpureum* had many branched spikes, each bearing a large number of flowers. The side stages of some of these houses were filled with hybrid *Odontoglossums* of carefully-selected parentage, *Odontodas*, numbers of *Brasso-Cattleyas*, hybrid *Cattleyas* and *Lælio-Cattleyas*, a goodly proportion of the plants of each section approaching the flowering stage. In one large house was a collection of *Cymbidium* hybrids, one side being entirely filled with crosses of *Cymbidium insigne* (Sander). Every available kind of *Cymbidium* has been used for hybridising with *C. insigne*, but it is curious to note how the influence of *C. insigne* shows strongly in the ornamental growth of all the hybrids, and probably the features of this parent will be seen in the flowers as well.

In the *Cattleya* and *Lælia* houses there were grand displays of *C. Mendelii* and *C. Mossiae*, the strains representing exceptionally fine qualities. Of the coloured forms of *C. Mendelii*, the variety *Pearl McBean* is one of the finest and has the best-coloured flowers, whilst of the light varieties the pure-white *C. Mendelii Memoria James McBean* is fine both in size and form. Of *Cattleya Mossiae* several white forms of the *Reineckiana* and *Wagneri* class were in bloom; also *C. Mossiae Aureola*, a bluish-white variety with a remarkable arrangement of deep golden-yellow in its broad labellum. Amongst a collection of *C. Lawrenceana* was a specimen with eight flowers on a spike, and both the *Cattleyas* and *Lælia purpurata* displayed the same floriferous character as the *Odontoglossums*. Several plants of *Miltonia vexillaria* had nine flowers on a spike.

A glance at the contents of the other houses revealed some fine specimens of the white *Dendrobium Dearei* with a few plants of the allied *D. Sanderei* in bloom; a number of darkly-coloured forms of *Cypripedium bellatulum*, with others of *C. callosum Sanderei*, *C. Maudiae*; a large quantity of *Brassavola Digbyana* crosses, some being in bloom; *Lælio-Cattleyas* in great variety, also *L.-C. callistoglossa*, *L.-C. Fascinator*, and *L.-C. Aphrodite*. *Miltonia Phalenopsis* thrives remarkably well in this nursery; one plant observed had about 20 of the pretty white and rose-coloured flowers; *Cattleya Skinneri*, of the large-flowered old type, and its pure-white variety; *C. Dusseldorfei* Undine, one of the best white hybrids; profusely-flowered plants of *Oncidium macranthum* which, with the purple-flowered *Odontoglossum Edwardii*, the scarlet *Cochlioda Noezliana*, and *Sophronitis grandiflora*, are grown at Cooksbridge under as cool conditions as possible.

A house filled with the best varieties of *Lælia anceps*, all the plants being in fine health; another of seedling *Odontoglossums*, together with the smaller plants of rare blotched forms of *O. crispum*; numerous crosses of *Cochlioda Noezliana* and *Odontoglossum Edwardii*, and combinations between *Ada aurantiaca* and *Odontoglossum Edwardii*, were all interesting.

Among the *Odontodas* in flower, *O. Charlesworthii* stood out as the finest in colour, with *O. Bradshawii* and *O. Vuylstekeæ* next in beauty. It was interesting to observe in the seedling *Odontoglossums* and *Odontodas* in their early stages the extraordinary size of the first and second pseudo-bulbs, due to good cultivation. In the earlier days of Orchid hybridisation such results were only obtained after several years, with the risks of failure during the progress of development extending over a lengthy period.

The large ranges of *Odontoglossum* houses at Messrs. McBean's, filled from end to end with plants possessing marvellously fine pseudo-bulbs, disproves the belief formerly held that large pseudo-bulbs were incapable of producing fine spikes and good flowers. *B.*

THE ROSARY.

THE PREPARATION OF ROSES FOR EXHIBITION.—I.*

IN growing Roses for exhibition, a start must be made as soon as the growths are about 4 inches long. To obtain good flowers, the plants must then be thinned of all weakly shoots, and only about three or four of the strongest allowed to grow. Some varieties, such as *Mrs. John Laing* (H.P.), *Caroline Testout* (H.T.), and *Maman Cochet* (Tea) will carry flowers well, whilst others, like *Capt. Hayward*, *K. A. Victoria*, and *Mme. Hoste*, will only perfect two or three blooms. The shoots, as time goes on, must be carefully searched both night and morning for maggots, which will cause much damage and loss of flower-buds if they are allowed to go unchecked. When the flower-buds appear, the side buds must be removed, and the centre one, provided it is a good shape and quite free from any insect damage, only allowed to remain. At the same time, all side shoots must be pinched off, as well as any which are showing at the base. When the calyx of the bud splits it will be necessary to shade the blooms. Roses do not like damp or rain, neither do they like too much sunshine, especially the dark-coloured varieties. There are several "shades" on the market, but all are rather expensive. The best is West's "Acme," sold at about 9s. per dozen. If one has only a few Roses, it is quite easy to contrive a makeshift shade with a piece of wood and calico. Its construction is very simple. Having taken a piece of cube sugar box, about a foot long and 6 or 7 inches wide, the piece of calico is tacked round, then bore a hole in the board near one end, through which a Bamboo cane is inserted. Old straw hats placed on sticks make good shades, but they are not lasting, and none is so good as West's "Acme." Buds can also be protected by placing paper cones on them, but paper protection is of no use in wet weather. The long, high-centred blooms seen in the show boxes at exhibitions are a trifle, so to speak, artificial. They have received the aid of a little tie of double Berlin wool. The process is a quite simple one: when the flower is a quarter open, the outer row of petals is pressed back, and the centre loosely bound with a piece of wool, the ends being twisted twice, but not tied in a knot. The shade is again put over the flower, and the bloom is ready for the show box in a day or two, according to the variety and the weather. Some varieties are more fleeting than others. For instance, *Mildred Grant* will last a week, while *Frau Karl Druschki* will only last a day; but the Rose cultivator soon gets to know the good and bad habits of the respective varieties. When once a tie is put on a Rose it should not be removed until staged at the show. The wool stretches as the flower expands. The tying of blooms retards their opening, and they expand very quickly when it is removed. There is a diversity of opinion as to the best time for cutting the flowers. I prefer to cut them at about six o'clock on the evening before the show, put the stems into water and store them in a dark, cool place. Blooms that are not sufficiently opened may be cut the following morning; but blooms cut

overnight stand up better the next day. The boxes should be arranged before the exhibitor leaves home, and he should take care to put the largest blooms in the back row, the better specimens at the corners, the next size in the second row, and the smaller in the front. All the surplus blooms should be taken for "spares." If the weather is hot, a small piece of ice placed in the moss will help to keep the blooms fresh; but the lid of the box must be raised, or moisture will generate and the flowers become spotted and lose colour. When the blooms are arranged, the exhibitor should not hold a private view at home. He must remember the blooms are for exhibition, and the exhibition is the place for his friends to inspect them. When the flowers reach the show, he should just peep into the box to see that they are all right, find the place allotted to him, and set his boxes in position. He will probably find that several competitors are already busy arranging their flowers. After ascertaining when the tent is to be cleared, and after raising the lid of the box, the Roses should be left untouched. If he wanders quietly round and watches others arranging their blooms, he will notice a camel-hair brush is much in evidence for pressing down the outer petals of first this and then that Rose. Now, if he watches closely, he will find that the Roses are really being spoiled. After having taken stock of his opponents' blooms, he should complete the arrangement of his own, removing any doubtful blooms and replacing with "spares." The ties should not be removed until it is necessary, always leaving the thin blooms until the last. The ties should be cut with scissors. A camel-hair brush may now be employed to gently press out the outer petals of the blooms; to what extent can only be learned from observation. One or two spare blooms should be kept ready in case a replacement is needed at the last minute, and care should be taken not to put duplicates in the show box. It is from the winning stand that one is able to learn what an exhibition Rose ought to be, and it has only been by careful study of many exhibits that cultivators have become successful exhibitors. Any remarks on exhibition Roses would be incomplete without reference to the best varieties for an amateur possessing only a small garden. The man who grows a few Roses wants those that flower and grow well year after year. It is a mistake to attempt to grow a great number of varieties; rather grow a few varieties that are constant, and have a number of plants of each, dividing them up between H.P.'s, H.T.'s, and T's. If I were growing, say, 200 plants, I should select 24 varieties, 8 plants of each of the following sorts:—H.P.'s: *Frau Karl Druschki*, *Mrs. John Laing*, *Ulrich Brunner*, *Captain Hayward*, *Hugh Dickson*, *A. K. Williams*, *Susanne Marie Rodocanachi*, *Her Majesty*, *Alfred Colomb*. H.T.'s: *Caroline Testout*, *Marquise Litta*, *K. A. Victoria*, *Mme. Melanie Souper*, *Mrs. Theodore Roosevelt*, *Dean Hole*, *Florence Pemberton*, *Lady Ashtown*, *The Lyon Rose*. Teas: *Maman Cochet*, *White Maman Cochet*, *Medea*, *Mme. Constant Souper*, *Mme. Jules Graveureux*, and *Molly Sharman Crawford*. These would provide sufficient plants for an amateur to show well in small classes. There are, of course, other beautiful Roses, but, unfortunately, many of them must be avoided by anyone who grows cut-back plants, as they can only be relied on to produce good blooms in the first year and but rarely afterwards. This is a pity, for amongst them are some of our finest Roses, such as *Mildred Grant*, *Bessie Brown*, *Mrs. W. J. Grant*, *Wm. Shean*, *Gustave Piganeau*, *Horace Vernet*, *Ulster*, *White Lady*, *Alice Lindsell*, *Helen Keller*, *Prince Arthur*, *Countess of Caledon*, *Lady Mary Fitzwilliam*, and amongst the Teas, the *Mermet* tribe, *Elise Varden*, *Cleopatra*, and *Mrs. Edward Mawley*. In a word, the small exhibitor should grow the reliable sorts, and leave those alone that only give chance blooms occasionally.

* A paper read by Mr. Courtney Page at the annual general meeting of the Pottery and District Amateur Rose Society.

PREPARATION OF ROSES FOR EXHIBITION—II.

DECORATIVE ROSES.*

I, too, propose to deal with the preparation of Roses for exhibition, but I shall take the section generally known as decorative Roses. To be accurate, perhaps, each separate class in the section should have slightly different treatment; but, for the purpose of discussion, I shall take three classes:—(1) Roses to be shown in single vases or bowls, of the type of Mme. Abel Chatenay, Richmond, and Lady Ashtown; (2) Roses shown more or less in bunches, as in a class for six vases of decorative Roses; (3) single Roses and Briars.

(1) My first class of Roses, in order to be shown at their best, require nearly as much preparation as exhibition Roses shown in boxes. At least a fair proportion of the flowers intended to be shown should, if possible, be cut with long stalks, with a single flower, perhaps with a bud also, at the end of the stalk. I am not an advocate of wiring Roses when it can be avoided; perhaps I am even a little prejudiced

other quality, and in showing Roses of this class it is most important. We can, however, seldom protect these Roses on the plant in the way we can exhibition blooms, and all the Roses in a cluster are seldom at their best at the same time. We have, therefore, to resort to other means to obtain the result desired. This is the process of "clearing up." I have here two vases of the Rose Tausendschon, and I am going to ask Mrs. Darlington, while I am speaking, to prepare one of them by the removal of all the flowers that are past their best. The other vase we will keep for comparison. You will notice now how much brighter and fresher are the flowers that are left, and how much better the foliage looks after the bunches have been reduced in size. The question of foliage is sometimes a difficulty. I have never felt quite sure whether the rule disqualifying an exhibit for added foliage is intended to apply to decorative exhibits; but there is nothing in the wording of the rule to prevent its application, and I believe many get over the difficulty by adding sprays of foliage and a certain number of buds. In the matter of foliage, how-

open as possible, then cutting off all the open flowers, and plunging the sprays up to their heads in water. If the buds were in the right stage, they will open indoors during the night, and be beautifully fresh and clean for the show next day.

Perhaps I should say a word about the points to which the attention of judges of decorative Roses is now to be directed. The National Rose Society has recently issued a new code of instructions to judges of these classes; they have not yet stood the test of trial, and are, perhaps, open to some criticism. It is not unlikely that it will be difficult to apply them to some classes, and they are rather complicated to carry in one's head. However, their introduction is a move in the right direction. [The speaker then read and commented on the new regulations.] You will notice that here "brightness," which I take to be the same quality I have called freshness, is put first, and receives the highest number of points. If difficulty arises, goodwill, I trust, will get over it, and simplicity may be reached in time.

FLORISTS' FLOWERS.

DWARF CHRYSANTHEMUMS.

DWARF Chrysanthemums are useful for many purposes. They may be raised at the end of May and during June from the tops of plants grown in the ordinary way. The shoots root readily if they are made about 3 inches long and inserted four around the sides of a small 60-sized pot in good, sandy soil. Plant firmly, and then well water the cuttings by means of a rose-can. Place the pots in a deep box in a shady place out-doors and cover the box with a sheet of glass. The shoots will form roots in about a month, and the plants should then be gradually exposed to air and sun-light. When the cutting pots are filled with roots, shift the plants, without dividing them, into 5-inch pots. Employ good, loamy soil, and ram it firmly. Practically all the single and decorative varieties of Chrysanthemums are suitable for growing in this manner. *J. R., Enfield.*

SWEET PEAS OF RECENT INTRODUCTION.

It is my privilege to have at present some of the latest and finest varieties in bloom. The plants are more than 4 feet high, having been grown for me during the last six months by Mr. Findlay, head gardener at Logan House, in a cool conservatory, and transplanted to the open ground in my garden at the end of April. I have never had Sweet Peas in flower so early before, for in former years it was usually in July that they came into bloom. I have given them for the most part very picturesque situations, in soil enriched with an application of leaf-mould and bone-ash, and they are growing with great strength and marvellous rapidity. Some of them are making their way up venerable Apple trees, where, ere long, they will create, amongst the congenial shade and coolness of the branches, highly artistic effects. One of them, namely, the beautiful Mrs. Hugh Dickson, of pale salmon-pink colour and tender cream, is already adorning with its large and refined blossoms, my only Walnut tree, which will probably wear an aspect of greater beauty this season than it has ever worn before. This Sweet Pea, which is especially distinguished by refinement, is unquestionably one of Messrs. Dobbie's finest introductions. Among varieties of its own colour it shines supreme. The other varieties that at present make my garden fascinating are Sun-proof Crimson, surely a great advance on King Edward Spencer, especially in the direction of colour-preservation, seeing that in the strongest sunlight, its peculiar brightness and purity are unstained; Edrom Beauty, which has expressively been characterised as a "glorified Helen Lewis"; Arthur Green, with maroon standard and violet wings "like a rich jewel in an Æthiop's ear"—as Shakespeare sings; the ex-



FIG. 2. —HEDGE OF NERIUM ODOLOM (OLEANDER) WITH SANCHEZIAS AND GALTHIMIAS IN THE FOREGROUND.

(See p. 11 and Supplementary Illustration)

against the practice, but, in the case of some of these Roses on long stalks, which will hang their heads, it can hardly be avoided, and, for Roses of this description, wiring seems necessary in order to keep the flowers upright and fresh during the show. All I can say is, use wires as seldom and let them be as inconspicuous as possible. In order to get these long-stalked Roses, a certain amount of disbudding will be necessary, but it need not be so severe as in the case of exhibition Roses, and I have not found that any removal of shoots is required. I am not, of course, referring to spring pruning, which should be rather severe, so as to get good growth.

(2) Next, as to the Roses for bunches. I believe that the art of showing Roses is to get them at the show as fresh and as brilliant as possible. Freshness is the first requisite for all Roses that are to win prizes. It attracts the eye of the judge more surely than any

ever, be careful not to put in too much, or your bunch will appear heavy; and remove all injured leaves as carefully as you would injured flowers. The arrangement of the bunch should be such that it is light and tasteful, and yet not straggling or untidy. When the bunches are arranged, their position in the stand will require consideration, so that the display may produce a good effect when viewed as a whole, and that the colours of the different varieties may not clash.

(3) Single Roses and Briars. These are, I believe, in some respects, the most difficult to show really well. The chief point still to remember is freshness; but this must extend not only to the petals of the Roses, but to the stamens, which must be a bright and clear yellow in the centre of the flower. It is often difficult, and, in bad weather, sometimes impossible to get this result in flowers which have opened out-of-doors, and the best plan, as a rule, is to pick the flowers early the day before the show, getting as many sprays with buds just about to

* An article delivered by Mr. H. K. Darlington at the annual meeting of the Fotters Bar and District Amateur Rose Society.

quisite, ivory-coloured Isobel Malcolm and Masterpiece. Masterpiece is a grand flower; its most formidable rivals being Florence Nightingale and Asta Ohn. I am looking forward to the period when my Eckfordian namesake, recently crossed with the Countess Spencer by Mr. Henry Ohn in California, will reappear in this country with considerably longer stems and larger flowers of Parma Violet hue. When this is achieved, it will be an important floral acquisition.

Other Sweet Peas which I have in my garden sown in the open ground in March, are the Californian Ethel Roosevelt (raised by C. C. Morse & Co.), a soft primrose suffused with faintest carmine-rose; Florence Nightingale, a highly-endowed native of Newtownards; Mrs. Routzahn; Mrs. C. W. Breadmore; several beautiful representatives of the "Paradise" hybrids, raised by Miss Hemus; and Marie Corelli. *David R. Watson, June 17.*

THE ALPINE GARDEN.

THREE GOOD PLANTS FOR THE MORaine.

DRABA DEDEANA (syn. *D. aizoides* var. *Dedeana*), see fig. 3, from the European Alps is a close-tufted little plant of cushion habit, with dark-green, hairy leaves, the whole somewhat resembling *Saxifraga Elizabethæ*.

The flowers are white, and numerous produced. The plant delights in the gritty soil of the moraine and full exposure to sunshine, with an abundance of water whilst growing.

Draba pyrenaica (syn. *Petrocallis pyrenaica*), illustrated in fig. 4, is a charming miniature species growing only 2 inches high and forming a rather less cushion-like growth than *D. Dedeana*. The leaves are rather lighter in colour than the latter, very small, and fringed with hairs.

The flowers appear (as in the case of *D. Dedeana*) early in April, being a most delicate

about among the stone chips without any assistance, and spreads quite rapidly.

Many alpine plants are difficult to cultivate in the ordinary rock garden, dying in the centre of the clumps, whilst remaining fairly healthy at the edges. So far as my experience goes, this is not the case when they are planted in the



FIG. 4.—*DRABA PYRENAICA* FLOWERING IN A MORaine GARDEN.

moraine, the centres, as well as the edges of the patch, remaining healthy and vigorous.

The other plant, *Eritrichium nanum* (see fig. 5) is the gem of the higher Alps, and I fear in many cases the despair of the Alpine gardener.

It, too, possesses the hairy foliage which is present in so many plants that are difficult to cultivate, the leaves being somewhat strap-shaped and pointed.

The blue colour and general delicate charm of the flowers of *Eritrichium nanum* are appreciated by all. The season of flowering is short, but brilliant, since in its native habitat all the uncertain early portion of the year is gone by the time the thick blanket of snow, which covers it during the winter, is melted. The plants come forth immediately into the height of summer, while in the autumn they are put to rest by the falling temperature, and protected effectually all the winter by a deep covering of dry, powdery snow.

These conditions are impossible in gardens, but we can imitate them in certain respects. The grit of the moraine permits the winter rains to pass rapidly through it, and not lie about the plant. Some growers advocate planting *Eritrichium* under an overhanging stone to keep off wet. This does not seem to me to be the most advantageous way of securing that desirable end, since the stone provides a certain amount of shade from the sun's rays.

The plan I find best is to plant it in the most exposed part of the moraine, and when November approaches to place a sheet of glass, considerably larger than the plant, some 3 inches or 4 inches above it, supported on three or four bent wires. If this is given a slight fall to one side the rain does not find its way in.

If, in addition, dry silver sand is sprinkled between the growths at the same time (early in November) so as to almost entirely bury the green points, it will prevent the cold winds from shrivelling up the minute growths. *Reginald A. Mathy.*

LILIES.*

In no branch of open-air gardening have failures been so numerous, and successes so few, as in Lily culture. The caprice of this most delectable clan has brought countless amateurs to despair, deepened by the reflection what British gardens might be if Lilies would but behave as reasonably as Roses. Yet it is not all caprice, as Mr. A. Grove explains in his volume upon *Lilies* in the Present-Day Gardening series, and he, if anyone, ought to know, seeing the manner in which he has overcome difficulties which most men would have shirked as insuperable, in cultivating some of the most refractory species on the chalk hills of Berkshire. "What do you mix your paint with?" was the lady's inquiry of Sir Joshua Reynolds. "With brains, ma'am," was the artist's reply, and here is Mr. Grove to convince us that the cunningest concoctions of loam, peat, grit, sand and what-not are vain without that same ingredient. Yet how few amateurs—how comparatively few professional gardeners—could declare at short notice whether any particular Lily was stem-rooting or base-rooting? Of the lavish expenditure upon Lily bulbs each autumn what a small proportion is invested with any consideration for the special requirements of each species in regard to soil, aspect and depth of planting. Henceforward there will not be a shadow of excuse left for blunders by anybody who can spend eightpence on Mr. Grove's pretty manual. If this author does not write with the picturesque exuberance displayed by some authors, if he only allows his latent enthusiasm to peep out here and there among the practical paragraphs, the very quietness of his tone inspires confidence in his precepts. Admitting, as he does, that there are Lilies which have hitherto baffled every device of the cultivator, he assures us from experience that there is no reason why nine tenths of the known species



FIG. 5.—*ERITRICHIMUM NANUM* FLOWERING IN A MORaine GARDEN.

(about 70 all told, with twice as many varieties) should not be brought to perfection in British open-air gardens.

There are many kinds that present no more difficulty to the intelligent grower than do Daffodils and Tulips; all it is necessary to do is to procure sound bulbs and plant them under suitable conditions. But no one should attempt the cultivation of the more troublesome sorts without a stout heart, a strong stock of patience, and a determination to get to the bottom of the difficulties with which he will be faced from time to time, and which, while sometimes seeming almost invincible, may one by one be overcome, leaving behind them ample reward in the delight

* *Lilies*, by A. Grove, F.R.S., with pictures by H. J. Lane, F.R.S., and beautiful colored plates. (Present Day Gardening Series, edited by R. Hooper Pearson.) London: J. and A. E. C. Jack. Price 1s. 6d.



FIG. 3.—*DRABA DEDEANA* FLOWERING IN A MORaine GARDEN.

shade of lilac. The appearance of the plant in bloom from a little distance resembles a lilac flush on the moraine.

I believe the plant requires almost yearly splitting up, and replanting when grown in the ordinary rock garden, but it seems to scramble

with which the patient grower will watch the unfolding of such exquisite blooms of *L. Leucht-linii*, *L. Kelloggii*, *L. rubescens*, or *L. japonicum*.

Unfortunately, to procure sound bulbs is not so easy as in the case of Daffodils and Tulips. To buy Lily bulbs imported from America or Asia "is gambling pure and simple," so ruthless is the handling they receive in being torn from their native woods and hillsides or in being harvested from Japanese farms, not to mention the vicissitudes of travel and storage. To overcome the results of these serious drawbacks, Mr. Grove prescribes two alternative plans, one being to raise the more difficult species from seed, which postpones fruition for any time from three to seven years; the other, to grow imported bulbs for the first season in pots, picking off the flower-buds to encourage the formation of roots, which alone can impart the vigour necessary to throw off the fungous disease and root mites so constantly present in bulbs imported from Japan. All this is intolerable to persons impatient for immediate effect, but for those who can possess their souls in patience the reward is sure.

Alas! we search Mr. Grove's pages in vain for a specific against *Botrytis cinerea*, that fatal fungus which has put an end to thousands of the peerless Madonna Lily in gardens where once it thrived as vigorously as any herb of the field. The inexplicable feature in the case is that in some gardens (the present writer's, for instance) certain clumps grow and flower as strongly as ever, while but a few yards distant, in similar soil and aspect, the stems arise only to wither untimely away.

We cannot too warmly commend Mr. Grove's treatise to the attention of gardeners and amateurs; every paragraph is written with a profound and practical knowledge of the subject. A word of praise is alike due to editor, publisher and printer. The eight coloured plates are admirably executed, rendering the volume one of the most attractive in a series as remarkable for cheapness as for a high standard of excellence. Critics, being animals of prey, cannot be satisfied without drawing blood. In this instance the only complaint that can be made is that there is no full index. *Herbert Maxwell.*

SCOTLAND.

THE DROUGHT OF 1911.

Now that the memorable drought has passed away (June 17), it may be interesting to note some of its effects upon garden plants. The soil here is a light loam, overlying rock and boulder clay, and craves a shower once a week. It received scarcely a drop for five weeks of flaming sunshine. Notable among Asiatic Primroses is the behaviour of *P. Bulleyana*. While *P. japonica*, *P. pulverulenta*, *P. Poissonii*, &c., flagged hopelessly in the borders, *P. Bulleyana* never turned a hair, but held aloft its fine whorls of deep-yellow flowers crowned with orange-tinted buds. *P. japonica*, naturalised in the woods, suffered not at all, and that is the place to grow it, for rabbits touch it not. In such a situation it carries its whorls 2 feet high. Roses have suffered from caterpillars, but, strange to say, there has been very little green fly. Lilies never were finer. *L. giganteum* may come a foot or two short of its full stature, though some stems are already over 7 feet high; but *L. Humboldtii magnificum* has risen to 6 feet, and is still rising, and *L. pomponium* is well up to 4 feet. Mulleins are having the time of their lives; the growth of *Verbascum leianthum* and *V. olympicum* is remarkable.

Among the finer *Meconopsis*, there has been some distress, as was to be expected. *M. Wallichii* and *M. paniculata*, planted out in 1910, are quite as fine as usual. The former species is not yet in flower, but the latter is expanding its purple blossoms at a height of 5 feet. *M. aculeata*, with its petals of an inde-

scribable pale azure, has faded irregularly, some plants throwing up fine spikes, others poor ones, whilst a few have not passed safely through the winter. *M. sinuata* v. *latifolia*, closely resembling the colour of *M. aculeata*, has done well, but was not planted out till April. *M. integrifolia* began to flower in the last week of April, and early plants rose to their usual height; but those flowering or to flower now have been sadly stunted by the drought. Among the seedlings of *M. integrifolia*, one produces pure white blossoms.

On the wall garden we have to lament some losses, despite pretty sedulous watering; but the Alpine species of *Dianthus* have never been better than they are at present. *D. calligonus* is the prince of this group, whether for delicate colouring or profusion of bloom. *Lithospermum prostratum* resents parching,



(Photograph by John Gregory.)

FIG. 6.—*PHILADELPHUS HYBRIDUS LEMOINEI*
VIRGINAL: FLOWERS WHITE.

Awarded R.H.S. First-class Certificate on June 20.
(See p. 430.)

but *L. graminifolius*, *L. rosmarinifolius*, and *L. petraeus* delight in it. *Spiraea decumbens* differs from most of the genus in that it thrives on a nearly vertical retaining wall, its charming foliage covering fully a square yard, at present gay with innumerable white rosettes. Campanulas seem to like the heat and drought, the earliest of all being *C. Allionii*, which commenced to flower on May 10.

One other plant deserves special commendation for its behaviour during a trying period, namely, Messrs. Robert Veitch & Son's hybrid *Calceolaria* "Golden Glow," which not only came through the winter without the slightest protection, but has been a mass of flowers since the beginning of May. *Herbert Maxwell, Monreith.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

RAINFALL AT WALTHAM HALL GARDENS, LINCOLNSHIRE.—Heavy rains fell in this district on June 23, 24 and 25. From Friday 8 a.m. until 8 a.m. Saturday we registered 2.02 inches of rain. This chiefly fell between 3.35 p.m. and 8 a.m. Saturday's rainfall amounted to 1.08 inches. Friday's rainfall must have done a considerable amount of damage in the local low lands. *Chas. Frankish.*

MARECHAL NIEL ROSE.—Mr. Hudson in his weekly calendar for June 24 advocates Continental methods of treating this splendid variety of Rose, but a more rigorous use of the knife or saw is even better. I have in my mind's eye a span-roofed glasshouse about 20 feet by 9 feet, with a centre path and a 3 feet border on each side, planted with five plants of Marechal Niel Rose and one of Reve d'Or. At Easter this house presented a spectacle never to be forgotten. The plants were cut down to within 3 feet of the ground every year after flowering, and they seemed to break stronger each succeeding year, the new growths completely covering the roof. I now treat my plants of *Niphotos* in the same manner, and I am getting twice the number of flowers obtained when less pruning was practised. *A. J. Elgar, Killarney House Gardens, Co. Kerry.*

TROPEOLUM SPECIOSUM (see pp. 394 and 418).—Quite recently I happened to visit Nuneham Park, Oxford, the residence of the Rt. Hon. L. V. Harcourt, M.P., and I saw this brilliant climbing plant in the most excellent condition. I was informed that it was planted some three years ago, the rhizomes being placed horizontally, 9 inches deep in the soil, and made firm after planting. The plant is growing in a well-sheltered Rose garden, and it covers a considerable space on the front of Box (*Buxus*) bushes about 12 feet in height to which the shoots cling with apparent delight, and nearly reach the top. The aspect is a northern one. Mr. Munday, the gardener, is deserving of congratulations for his management of this difficult plant and the many other interesting and beautiful objects to be seen at Nuneham. *W. Fyfe.*

—Mr. Greening's note on this plant gives rather a wrong impression of the climate of the western counties of England. As a Devonian born and bred, and having lived for more than a decade in Cornwall, I should hesitate to describe the climate of those counties as being hot in the general acceptance of the term. During my time in Cornwall I only experienced three short spells of really hot weather. When the temperature rises above the normal there is nearly always an excess of atmospheric moisture, and this makes the air close and muggy rather than hot. Such an atmosphere naturally induces luxuriant vegetation and is suitable to the needs of soft, fleshy, foliaged plants, and this is largely the reason why *Tropeolum speciosum* often thrives so well in the western counties. This being the case, one rightly expects to find the plant under notice luxuriant wherever there is a fair amount of atmospheric moisture combined with a moderate temperature, and, as Mr. Greening remarks, pure air. In such places as the western districts of Scotland, Ireland, and England these conditions prevail, and the *Tropeolum* does well even when exposed to the noon-day sun, but elsewhere it becomes necessary to afford the plant a northerly aspect. *A. C. Bartlett.*

—It is difficult to account for the failure experienced in many places to grow and flower *Tropeolum speciosum*, for the plant does well in places widely apart under different conditions as regards soil, situation and climate. Many years ago I saw a plant in fine flower growing against a wall having a north aspect in the gardeners' at Davenham Bank, Great Malvern, Worcestershire, then in charge of Mr. Jacques. The soil in which the plant was growing was, I think, a light and fairly rich loam. I also remember seeing the plant in fine flower at Ivy Cottage, Tynningham, Prestonkirk, in East Lothian; the trailing shoots completely covering a rustic arch, and extending over an

adjoining fence. It was growing in ordinary garden soil, within a mile of the German Ocean, while at East Linton, three miles distant, most of the window-boxes were filled with plants of this *Nasturtium*, producing a very graceful effect. At Pottallock, in Argyllshire, the plant, I understand, succeeds like a wildling, in any position and in any kind of soil. Mr. D. Melville kindly sent me a few roots from Pottallock, many years ago, which I tried to grow in two or three different situations at Longford Castle, but with indifferent success. I am under the impression that the plant would succeed here on the east coast. H. W. Ward, *Rayleigh*.

ROSA HEMISPHERICA p. 418.—Mr. Divers thinks that the statement on p. 394 about this Rose requiring dry weather is somewhat misleading. I think not. I know the Rose well, and the year before last one of my trees produced over 400 blooms, but one day's rain spoilt all but the unopened buds. It is a true species, not a variety. H. N. Ellersbach, *Lebanon, Pennsylvania*. *British*, June 21.

PICTURES OF EGYPTIAN RICE FIELDS AND ENGLISH MEADOWS AND GARDENS.—Three exhibitions of water-colour pictures are on view at the Modern Gallery (61, New Bond Street, W.), and each appeals to the lover of Nature in a different way. The most unusual and interesting—in that the drawings are seemingly truthful renderings of Cleopatra's country under a more infinite variety of Nature's moods and effects than we are accustomed to see served up to us by the painters of Egypt—are Mr. F. F. Ogilvie's studies and sketches of Egyptian canals and Rice-fields in flood and harvest. His groups of Date Palms—as they are, in close proximity in the foreground and in the distance—silhouetted in their delicate, feathery grey-green, against the peculiar pale-green sky effects prevalent above the Nile waters and reflected in its depths, are instructive to the botanist and the student of trees, and delightful to the amateur, in the true sense, as a lover of the beautiful. Mr. Ogilvie not only paints with an eye to the appearance of his subject-matter, but with an understanding mind as to its object and significance in the scheme of things. He knows, for instance, that the solitary Palm in a wide stretch of desert means more than a mere handful of Dates—though it sprang from a single Date stone cast away. It means water at the roots, however dry and arid the surroundings, or it would not have germinated there. He has also a tale to tell of the insidious, crimson Bougainvillea, of which a specimen is portrayed in his white-walled "Cairo Garden." Only a short time since introduced from South America to these coasts—this gorgeous creeper, in all its pomp of purple-reds—finding a soil so fertile, climatic surroundings so sympathetic, has now spread itself along the shores of North Africa and up the Mediterranean, and taken possession even of the Canary Islands. The Temple of Philæ is the subject of many of Mr. Ogilvie's sketches. "The Hall of the Columns" should be specially noticed for its essentially botanic bases of design. Each column is a "lariat." One is built up on the idea of the Lotus, a sheaf of the long, slender tubes of the stem being, apparently, bound below the petals, which turn over to form the capital. Another has the Papyrus for its basic idea; another the Date Palm—all plants indigenous to the great Nile valley; but that pert upstart, the modern creeper, that crimson Bougainvillea is absent from this Temple of Isis. Of the two other exhibitions, first should be seen the work of Mr. Joseph Powell (in the central hall), who shows a fine drawing, full of atmosphere and charm, entitled "Blackdown from Hambledon Common." Here, under a fine sky, we see the Heather at its best, softened down by autumn's touch to a restful colour, not so blatantly crimson and crude as it so often appears in the height of summer. This artist also has some excellent hayfields, the one entitled "Leatherhead" being particularly noteworthy and discriminating; and the word is used advisedly, for had the third exhibitor, Mrs. Caldwell Crofton (Helen Milman), exercised this quality, her "Heather Pictures and Gardens" would have gained in artistic excellence. Many of her drawings are good in design and well placed on the paper. They are, however, capable

of being carried further, and, with a modicum of the grace and sentiment she has expended on their titles transferred to the little pictures themselves, would be infinitely more pleasing. "The Pergola, Norman's Wood," exemplifies this criticism. The design is good, and the massing of white flowers—tall Lilies down below and white Clematis high on the arch against the sky—are a credit to both the gardener of Norman's Wood and the artist. "Lilac Arch," Boughton Park, is good; also quaint Hayes Barton, the birthplace of Sir Walter Raleigh—as far as it goes. There is an un-studied sketch of wild Hyacinths on a bank which is described as "Bluebells," and has merit, though a little harsh in colour. Mary L. Breckell, *June 25*.

PROF. MARSHALL WARD.—In connection with the note on the late Professor Marshall Ward (see p. 411), it may interest some of your readers to know that his son, Mr. Frank Kingdom Ward, is at present plant-collecting for us on the Salween-Mekong Divide in Western China. This is the range along which Mr. George Forrest, unaided and bare-footed, made his marvellous escape from the pursuing Lamas (see *Gard. Chron.*, May 21, 1910, p. 326). The range is a perfect garden of Alpine plants, and, as the district is now quiet, Mr. Ward has ventured to it, hoping to secure, amongst other choice subjects, the much-desired *Meconopsis speciosa* and the "black" *Rhododendron* of Taskon. *West. Ind. News, Chester*.

HYPEASTRUM BULBS DESTROYED BY CRUCC.—Last winter four or five bulbs of Hypeastrum in my greenhouse were found to be infested with stout grubs, and I at once suspected them to be the larvae of the "Narcissus fly" (*Merodon equestris*), which is generally common in gardens. To make sure, however, the larvae were placed in a breeding cage, with the result that more than one dozen of the flies hatched in May and June. Fortunately, in this case the bulbs were not costly ones, but it shows how serious the loss might be if a few flies, or even one female fly, gained access to a choice collection of these plants. *Fredk. C. Adams, Fern Cottage, Lyndhurst*.

RED SPIDER ATTACKING VINES.—I agree with Mr. Cox (see p. 394) that too much heat is often used during the flowering period of the Vines, and also that most vineries are kept far too dry. Another cause for red spider appearing is the border being dry. During the stress of work in the spring the vine border is often overlooked just at the time when, owing to the vines being in active growth, it requires more attention than ever. It is a good plan to examine the border before the vines flower, and, if needed, it should be given a good soaking of clear water. This will carry them over the flowering period, and they may be watered again after the bunches are thinned. I am sure, given fairly good weather, that the most obstinate setting varieties will have a good supply of berries if a normal heat is maintained in the pipes, and a little fresh air admitted through both the bottom and top ventilators. The rods should be tapped quite sharply about mid-day to distribute the pollen. With regard to the question of red spider, the position and construction of the vinery have much to do with it, but on the whole close attention to cultural details is the best way to combat the pest. With proper damping down and watering, and careful attention to opening and closing the vinery, red spider need not be feared. The sulphuring of the pipes should, in my opinion, rather be taken as a cure than as a preventive. As soon as red spider is noticed, close the house and push the fire to make the pipes very hot, then paint them with milk and sulphur. As soon as the fumes of sulphur can be seen, stop the fire, and allow the house to remain closed for about one hour, then open the top ventilator just a little, and allow it to remain open all night, increasing the amount of ventilation next morning. I have practised this method in the case of both Vines and Peaches with excellent results, and without the least harm resulting to the foliage. There is great danger from scorching next day if the house is not opened the evening the sulphur is applied, and also the next day. It is often possible to stop red spider from

spreading by spraying the affected leaves, but this must be practised early to be effectual. I do not agree with the recommendation that the pipes should be always kept painted or dusted with sulphur as a preventive measure, as, in hot, dry weather, the remedy would prove more injurious than the spider. The old maxim, "A stitch in time saves nine," applies well to red spider attacking Vines. I am not sure that sulphuring would be effectual were the house allowed to get very badly infested with the pest. R. W. Thatcher, *Wistow Hall Gardens, Leicester*.

NODULES ON NON-LEGUMINOUS PLANTS.—Mr. Harold Evans, on p. 360, draws attention to the presence of nodules on the roots of *Clematis integrifolia* growing on land previously cropped with Lupinus. Prof. Cavers, who had examined them, believed them to be due to nodule bacteria. At my request Mr. Evans kindly sent me some roots of the *Clematis* bearing what he believed to be similar nodules. The swellings on the roots were superficially somewhat similar to those seen on some of the Leguminosae, though less irregular in form than those which leguminous plants often bear. The largest were about $\frac{1}{2}$ inch in length and $\frac{1}{4}$ inch in diameter, and smooth externally. Some of the roots bore several such swellings. They reminded me greatly of swellings seen on roots of *Clematis vitalba* sent to Wisley Laboratory last year from an entirely different source, which were produced by the attack of the root eelworm, though they were somewhat larger. A section across a swelling showed one or two small brown areas due to the presence of dead tissue, and from these could be picked out with a knife point tiny, colourless, globular bodies difficult to discern in the tissues, but easy to see with the naked eye when removed. These proved to be the egg-filled bodies of the "root-knot" eelworm *Heterodera radicola*. There were no traces of nodule-producing bacteria in the tissues. The nodules had undoubtedly been formed through the attack of the eelworm, which affects the roots of Cucumbers, Melons, and Tomatoes, forming the worst pest which the market gardener under glass has to contend with. Some 60 different species of plants are known to be subject to the attack of this parasite, to which Berkeley first drew attention in the *Gardeners' Chronicle* in 1855 (p. 220). Being desirous of obtaining the nodule-forming bacteria from *Clematis*, I communicated with Prof. Cavers in the hope that he would be able to send me some of the nodules originally sent to him, but he permits me to say that on re-examination of these nodules, he feels convinced that they were produced by the attack of eelworms, and had no connection with the nodule bacteria of the Leguminosae. To induce bacteria to take up their abode in the roots of non-leguminous plants, and so to confer upon them the same benefits that leguminous plants derive from their presence, is a fascinating dream which may not be beyond man's power to materialise in the future, but so far it appears to have eluded his efforts. I have been unable to verify the quotation made from Percival's *Agricultural Botany* by Mr. J. Smith. *Fred. J. Chittenden, Wisley Gardens*.

EXTERMINATION OF EELWORMS.—In the *Gardeners' Chronicle* of June 3 last (p. 351) mention was made of experiments to exterminate eelworms by means of carbon bisulphide from pot plants of Begonias. I have been asked many times by gardeners and others attending my lectures if I knew of or could suggest a remedy. I have tried various agencies with varying results. As there are doubtless many gardeners who get a batch of Begonia Gloire de Lorraine infested with the pest, probably just when the plants are becoming useful, and when they can ill afford to destroy them, I would recommend them to top-dress the pots with Rape dust (Rape meal), which acts as an exterminator of eelworms and a fertiliser of the soil at the same time. Among the numerous head gardeners to whom I have given this information is the gardener to the Rt. Hon. Lord Henniker, Thornham Hall, near Eye, Suffolk, who had a very large batch infested. I sent him a parcel of Rape meal, which cleansed the soil in which his plants were growing, and also improved the quality of the plants. *John Smith, County Council Lecturer and Instructor in Horticulture, Durham*.



The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., L.L.E., Westonbirt, Gloucestershire.

ODONTOGLOSSUMS.—The late summer and autumn-flowering members of this genus, including *O. grande*, *O. Insleyi*, and *O. Schlieperianum*, are showy and useful Orchids, possessing the additional merit of being easily cultivated. The plants are not so fastidious in their atmospheric requirements as are *O. crispum* and similar species, therefore amateurs and others not possessing an Orchid house may grow *Odontoglossums* in company with ordinary greenhouse plants requiring a fairly humid atmosphere. In the Orchid house proper, the plants may be grown in the cool, intermediate house. Regarding their blooming season, they are rather erratic, especially *O. Insleyi* and *O. Schlieperianum*, but from now onwards they are usually at their best condition of flowering. The blossoms, if kept dry, remain in perfection for a period of three or four weeks, and if the plants are healthy, no harm is done by allowing the flowers to remain. The young growths are produced early in summer, the date varying a little in the different species, but roots are not produced from these young growths until they have attained to a considerable size and have formed pseudo-bulbs. However, the older roots will be very active, and therefore the plants should, if necessary, be repotted while the young shoots are only a few inches high. Frequent disturbance at the roots is harmful, but the plants should not be allowed to remain in a sour compost. When repotting is necessary it should be done thoroughly, first removing all old and sour materials from about the roots, replanting in a compost consisting of equal parts, *Osmunda* fibre, Oak leaves, and *Sphagnum*-moss, used in as rough a condition as possible and mixed with plenty of coarse silver sand. The roots, being larger than those of most *Odontoglossums*, grow best in a rough medium. The plants should be grown in pots or pans supplied with ample drainage. Pot moderately firmly, and surface the pot with clean *Sphagnum*-moss. Water must be supplied carefully for some time afterwards, and care must be taken in its application not to let any lodge in the young growths, or the latter may damp off. When established and growing freely, the plants enjoy a liberal treatment, and this should be afforded during the flowering period and afterwards, until the pseudo-bulbs have fully matured. During the resting season not much moisture at the roots is required, but the plants should not be kept thoroughly dry or they will show the effects by shrivelling, by forming weak growths the following season. These *Odontoglossums* should be afforded a light position with a free circulation of air at all times, and should be shaded moderately from bright sunshine during the summer. Insect pests are very troublesome to all the plants of this section, wood-lice and small snails being very fond of the succulent leaves on the young shoots; the cultivator must therefore be on the watch for them, and adopt preventive measures.

O. CITROSUM.—This beautiful Orchid is not at all difficult to cultivate. Any light house wherein plenty of fresh air is assured and where a cool, intermediate temperature is maintained will suit the plants. *O. citrosomum* succeeds best when grown in pans or baskets close up to the roof glass, under a moderate shade. It requires plenty of moisture when growing freely, and especially in the autumn, when the pseudo-bulbs are thickening. This Orchid resents root disturbance, but when new rooting material is necessary, it should be afforded directly the plants have passed out of flower. The compost should be rough and open in texture, and consist of *Osmunda* fibre mixed with a little, fresh *Sphagnum*-moss; the drainage materials must be ample and they should be arranged with care. Avoid over-large receptacles, and, when repotting, make the materials firm about the roots. After root disturbance the plants sometimes shrivel badly, and care is required to induce the plants to re-establish themselves quickly.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Gardener Foreman, Royal Gardens, Windsor.

TURNIPS.—It is necessary to make another sowing of Turnips, selecting a somewhat shady position, as the roots soon become stringy and hard if exposed to strong sunshine. The Turnip requires a rich soil. In order to produce good-sized roots as quickly as possible, thin the plants to 9 inches apart as soon as they are large enough to handle. The Turnip is a moisture-loving plant, and if dry weather should set in a plentiful supply of water should be given to bring the crop to maturity without a check. Red Globe, Snowball, and Green Top Stone are reliable kinds for present sowing. A small sowing of the variety Early Milan made at the same time will furnish roots ready for use 10 days in advance of the others. Give frequent dustings of soot or wood-ashes in the early morning while the foliage is damp to keep the Turnip fly in check.

SPINACH.—Seeds of this vegetable may be sown broadcast on a north border or in empty pits where a plentiful supply of water can be given. At Frogmore the principal supply of Spinach for the next two months is grown in this way, until the pits are required for the protection of some other crop. If the seed is sown moderately thickly the Spinach may be cut close to the ground as soon as it is large enough; by this means a supply of young, tender leaves will be available without much trouble or expense.

PARSLEY. Parsley may be sown now in some sheltered part of the garden for use through the winter and spring months. As soon as the plants are well above the ground they may be thinned to 4 inches apart, and the surplus seedlings may be planted in a cold pit for use when the weather is too rough to gather supplies from the open garden.

CUCUMBERS.—A sowing of Cucumber seed may be made now to produce plants for early winter supplies. These plants should be ready to put out by the second week in August. Sow the seeds singly in small pots and germinate them in a temperature of 70°. If the soil is moist at the time of sowing, no water will be necessary until the young plants appear through the surface, when gentle watering may be given. Set the plants out, as soon as they are large enough, over a gentle hot-bed and as near to the roof-glass as possible. The soil employed at this season may consist of three parts turfy loam and one part decayed manure. Only a small quantity of soil should be placed on the bed at one time, but as soon as the roots appear through the surface of the mounds, light top-dressings of loam and horse-droppings should be given. A little soot dusted over the bed from time to time will give a deep colour to both fruit and foliage. Plants from which supplies are being gathered should be freely thinned and the roots top-dressed lightly with fine loam and artificial manure. Syringe the plants twice daily and close the house early in the afternoon, allowing the temperature to reach 90° with sun-heat.

TOMATOS.—Tomatos planted out-of-doors should be making a rapid progress in growth. The plants should be restricted to single stems; no side shoots should be allowed to remain after they are large enough to be pinched off with the finger and thumb. When a few trusses of flowers are set, the tops of the plants should be pinched out in order to hasten the development of the fruits.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Ash & Co. Clinton Gardens, Buckinghamshire.

WALL TREES.—The watering and syringing of wall trees, except in the case of those on which the fruits are ripening, should be practised regularly. These operations are best performed during the afternoon or evening, as then the effects of the water last for a long time. Many neglect to water and syringe their wall trees in the mistaken belief that the trees receive sufficient moisture from rains and dews, forgetting that a tree planted against a wall, deprived by projecting copings of the natural dews and rains, and exposed fully to the rays of a midsummer sun, requires to be supplied with water, almost or quite as much as specimens that are grown under glass. In all probability the unhealthy

condition of the majority of wall trees is due to an insufficiency of water more than to any other cause. Where the trees have not yet been summer-pruned, the work should be commenced at once, otherwise the fruits upon such trees will not only be small and ill-grown, but they will be retarded in ripening and of inferior flavour. The neglect of summer pruning and timely regulation of the young shoots is especially detrimental in the case of Apricots, Peaches and Nectarines and other trees that produce their fruits principally upon one-year-old shoots. The pruning in winter requires a far greater amount of labour and patience when summer pruning is neglected; neither can it be executed with such accuracy. The stoning of Apricots, Plums, Peaches and Nectarines is now practically over, and the danger of the trees casting their fruits being past, the latter should be finally thinned, for, although sometimes a few drop off before the stages of stoning and final swelling, all thinning should now be completed. Nothing assists more in keeping fruit trees in a sound, healthy condition than regularity in their cropping, yet few growers thin their fruits sufficiently, the majority being ambitious of securing large crops. Morello Cherries or other berried fruits planted on north aspects, should, before the fruits commence to ripen their crops, be protected from birds by nets or tiffany. I do not advocate covering them with garden mats, as is sometimes done, unless it is desirable to preserve the fruits till a very late period.

STRAWBERRIES.—In many districts the layering of Strawberries will have been commenced; and in the more favoured localities many early runners are already well rooted in their layering pots. Where this work has not yet been commenced it should be put in hand forthwith, or the next season's crop of fruit will be a small one. The operation of layering the runners is so well understood that a repetition of the process is unnecessary. Keep the layers growing in a healthy condition whilst attached to the parent plant, and, when well rooted in the layering pots or turf, transfer them to their permanent quarters.

GRAFTED TREES.—Fruit trees that were grafted in the spring should be examined to see that the tying material is not cutting the stems; should this be the case, the bandage must be removed, and, if necessary, the graft should be secured by another piece of matting. All grafts that are making headway should be securely tied to a support to prevent damage by winds. One of the best methods of doing this is to attach a neat flower-stake to the stock, allowing it to extend beyond the young shoots. The growths may be secured to this from time to time as they grow.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

PEACHES AND NECTARINES.—Where these fruit trees are planted in cases or houses in variety, a good succession of fruit may be expected. Unless the fruits are required as soon as possible, the general welfare of the trees will be served by allowing a free circulation of fresh air, especially on warm days, and maintaining a humid atmosphere by thoroughly damping the borders several times daily. Syringe the trees freely early in the morning and again in the afternoon, forcing the water well on the undersides of the leaves. This will do much towards keeping the growths in a healthy condition and will also keep down red spider. Thrips also must be kept in check, and unless the fruit is near to maturity, the house should be well fumigated in the evening. Continue to assist the trees by giving liquid manure, or a dressing of some quick-acting fertiliser, the latter to be washed into the soil by watering. On no account allow the borders to become excessively dry. Attend to the tying and regulating of the shoots before they come in contact with the glass of the roof. Elevate the fruits as advised in a previous Calendar, exposing them to the sun's rays as much as possible. As the fruits approach the ripening stage, the syringing of the trees must be discontinued. If it is required to keep back the fruits of a certain tree, it is an excellent plan to shade the roof over it with a mat during the hottest part of the day. The

fruits on late trees should be thinned to the requisite distance apart directly the stoning period is over. Allow the trees an abundance of air both day and night to retard the ripening of the fruits, and keep the surroundings thoroughly well damped.

CUCUMBERS.—Pots in pits, frames, and unheated houses will, at this season, augment the supplies of this crop. Admit fresh air with caution and keep the house, pit, or frame thoroughly well damped on hot days, and close the ventilators early in the afternoon to make the fullest use of the solar heat. Attend to the thinning-out of weak growths and the stopping of the remaining ones. Assist the plants with top-dressings of rich materials to encourage plenty of root action near the surface, also with applications of liquid manure, and an occasional watering, after the soil is sprinkled with some quick-acting, soluble manure. Cucumbers in houses that show signs of exhaustion should, at this season, be removed, the house washed, and a fresh batch of plants put out.

TOMATOES.—During this month it will be necessary to sow a further batch of some good reliable variety of Tomatoes for fruiting during the winter months. Sow the seed thinly in pots or pans, and directly the seedlings appear place them as near to the roof-glass as possible. Shift the young plants into 3-inch pots, and should the growths be drawn, keep the roots low down in the pots. Grow the plants as sturdily as possible, affording cool conditions, and after they have recovered from the shift, remove them to a cold frame. Before the roots become pot-bound, afford a further shift into 6-inch pots, using a compost consisting principally of good turfy loam. Pot firmly, and water carefully for some time after potting. Place a small support to each plant at an early stage. Tomatoes that were planted out earlier in the season in Peach-houses, &c., are now fruiting freely. Having an unrestricted root run, they should continue to produce plenty of fruits. Plants growing in 6-inch pots intended for autumn fruiting should be potted on into larger receptacles as soon as possible.

THE FLOWER GARDEN.

By R. F. BOWEN, F.R.S.E., Lecturer in the Field of Horticulture at the Royal Horticultural Society.

THE MIXED FLOWER BORDER.—The plants introduced to fill the spaces which were occupied earlier in the year by flowering bulbs have now nearly or quite furnished the ground, and the borders as a whole are looking well. The necessary work on the flower border for some time to come will be largely of a routine nature, such as the removal of weeds that have escaped notice, the tying of such rapidly-extending plants as Hollyhocks and Gladioli, and the removal of dead leaves, withered flowers, and any other material that causes untidiness. Any novelties that were planted for trial and that have failed to satisfy expectations should be removed and replaced by some proved subjects from the reserve garden, no matter how common they may be. Old plants are sometimes overlooked, whereas they may be associated with others that will act as a foil, with good results. Thus an old-established plant of *Nepeta Mussinii* in these gardens had some scarlet-flowered Sweet Williams arranged beside it last spring, with a mass of *Anthemis tinctoria* alongside, and the effect was charming. Next season the hitherto somewhat despised *Nepeta* will be more largely employed.

THE FLOWER-BEDS.—The plants in the flower-beds are fast filling their quarters, and a systematic inspection of them should be commenced. This should also be done in the case of carpet-bedding at intervals of a week; but, in the case of ordinary flowering plants, it may be done less frequently. All the same, it takes a shorter time and not so much labour to attend to the plants at frequent intervals than when they are permitted to grow for a long time unchecked. Moreover, the garden presents either a rough or palpably overtrimmed appearance if this latter system is adopted, whilst, by the other, it is maintained in a uniformly tidy condition, so that, to the uninitiated, it would appear as if no care were bestowed in its keeping. There has been much fatality among annual Asters in these gardens, chiefly of the variety

Ostrich Plume. After exhausting my reserve stock, I am falling back on singles of the same colour which were prepared to supplement the Ostrich Plume varieties later in the year should they have finished flowering before the end of the season. The plants in two beds of Emperor Larkspurs have also been badly affected with disease. The beds meanwhile have been replaced with *Ageratum* of the same colour as the Larkspurs, and later, probably, Asters will be added. Our *Begonias* were slightly damaged by frost on the morning of June 15, but the plants are now growing out of the bad effects, and beginning to flower. It should not be forgotten to remove the female flowers of these plants before seeds have formed. They are usually well known, being the two small blooms at either side of a central male flower.

CARNATIONS.—The earlier-flowering varieties of Carnations, such as *Lady Hermoine*, are now opening their blossoms, and, if not yet attended to, a few of the latter, where they are crowded, should be removed. For decorative purposes, however, it would be wrong to thin severely, as the lower buds produce flowers when the main blossoms are over. Vigorous plants develop, in addition to the central flower-spikes, side growths, and these should now be advanced sufficiently to require tying. Just now, if labour can be spared, the non-flowering shoots may be thinned to about 8 or 10 on each plant, as they do not require to be crowded for layering, which may be commenced where the "grass" is in a proper condition; but a week or 10 days hence is usually early enough, and in the south a much later date is preferable.

PLANTS UNDER GLASS.

By JAMES HENNING, Gardener, The Royal Botanic Gardens, Kew.

SEEDS FOR PRESENT SOWING.—*Calceolarias* of the herbaceous section should be sown as soon as possible. My plan is to sow in shallow pans and place these under handlights at the foot of a north wall. The soil should be fine and light, yet made firm, and thoroughly wetted previous to sowing. Stand the seed-pans over a pan of water as a safeguard against slugs and other insect pests. *Calceolaria "Golden Glory"* also may be raised in this manner, which is a more satisfactory method than sowing the seeds earlier in the year and germinating them in a slight heat.

PRIMULA SINENSIS.—This *Primula* may be raised during July better than earlier in the season. Early plants, it is true, are essential for late-autumn flowering, but those raised now, if grown without a check up to their flowering period, frequently make the best plants, as the early plants sometimes get somewhat hardened in growth, and do not continue to grow freely. The pans for sowing the seed should be prepared as for *Calceolarias*. After the seeds are sown, a piece of brown paper tied over the pan will keep the soil moist, and save watering the soil to such an extent as is necessary when the paper is not used. The pans may be stood in a favourable corner in the greenhouse or a close frame. Here, again, I advise the use of a handlight as a means to the end, and a good layer of finely sifted ashes under the pans to produce an equable and moist temperature.

HUMEA ELEGANS.—The present is a suitable time for sowing seeds of this useful plant. Treat them as advised in the case of the *Primulas*. Do not aim at obtaining excessively large plants this coming autumn, but rather try to secure sturdy, if small, plants, and then grow them on freely next spring. A sappy growth is undesirable, as plants of this nature cannot withstand the winter.

CINERARIA SEED of both the florist's and the stellata or Star *Cinerarias* should be sown without delay. As in the case of *Primula sinensis*, the early sowings do not always furnish the best plants. Treat them as advised in the case of *Primulas*, but in this instance do not shade the seed pans so heavily. Harden off the seedlings by placing them in a cool frame as soon as they are ready to be pricked off. They need to be protected from brilliant sunshine; a frame with a north aspect is the best place in which to grow them.

GERBERA JAMESONII.—The seed pods will now be ripening, even on plants grown under a cool treatment, and the seeds should be sown as soon as harvested. By this means a batch of plants will be obtained which will flower freely next season. The seed can now be germinated easily in a cold frame. The new hybrids, known as *Adnet's* strain, afford flowers having a wide diversity in colour, and are well worthy of culture as pot plants. The full value of *Gerberas* as garden plants does not yet seem to be fully appreciated.

MIGNONETTE.—A sowing of the most-approved varieties for pot culture, if made now, will furnish useful plants for late autumn use. I advise that the seeds be sown in 6-inch pots at this season, afterwards thinning the seedlings to five or six plants in a pot. A cold frame is the best place for them. Other cultural particulars were given in a previous calendar. Plants that have been raised in smaller pots and are now growing freely may be potted into 6-inch pots that they may gain strength before the flowering trusses form. These will make fine plants for early autumn flowering.

THE FRENCH GARDEN.

By PAUL AGASSIS.

OLD MANURE BEDS.—We are preparing some of the old manure beds for planting Carrots as an autumn crop. The best variety for this purpose is "Bellot," but if pointed roots are required "La Chantrelle" should be selected instead. The long-rooted varieties do not succeed so well as the stump rooted sorts, the leaves growing too luxuriantly and dropping readily during cold, damp weather in October. The seeds are sown broadcast, and covered with a good mulching of finely-broken manure. Light and frequent waterings are necessary to ensure a quick germination.

MELONS.—The last fortnight has not been favourable to this crop, and the maturing of the fruits has been retarded. The plants have withstood well the inclement change of weather as the shoots are strong and healthy. Watering has been withheld entirely, and ventilation given only moderately. It will be necessary to watch the crop very closely after the recent period of dull weather, as weak plants will be liable to wither with the return of bright sunshine, and this must be prevented by giving an abundance of fresh air and shading the glass carefully. The fruits will also ripen quickly and in quantity.

CAULIFLOWERS.—Cauliflowers are being planted four per light, in the Melon frames. They are only grown where there is a good local trade, as they hardly pay to send to market late in September. It is not advisable to plant Cauliflowers in Melon frames in gardens in the Midlands or the northern counties, as it is often necessary to replace the lights on the Melons in wet weather during August or September.

CUCUMBERS.—The plants growing in frames are now in bearing, and the fruits should be cut as often as possible. The glass can be shaded by spraying whitewash over the roof, but do not employ a brush as this would give too dense a shade.

TOMATOES.—Tomato plants have developed a considerable amount of wood during the past fortnight; the side shoots and the bottom leaves should be removed without delay. Now that the fruits are swelling the plants should be given a top dressing of nitrate of soda.

OPEN-AIR CROPS.—The Cauliflowers planted among the Lettuces in the early spring are now forming their inflorescences, and they will soon be ready for marketing. Where green Onions are in demand throughout the winter and spring months, a sowing should be made very thinly in a sheltered position. The seedlings are not pricked out, the roots being pulled as soon as they are ready, early in October. Instead of Onions, Chives may be sown. The variety "Early White" is the best for the purpose, though it loses its leaves in times of severe frost.

BEANS.—Kidney Beans should be sown in beds, each 4 feet 3 inches wide, the rows in a bed. This will allow frames and lights being placed over the plants late in September when the plants are in bloom. Canadian Wonder is the best all-round variety, but the variety Little Nigra is valuable for its compact habit of growth.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for illustration, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Correspondence on horticultural subjects should be sent to the Editors in the week to precede and only on special occasions, if referred, the signature and address should be kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unsolicited communications without acknowledgment. If desired, the signature and address should be kept as a guarantee of good faith.

Illustrations. The Editors are glad to receive and select photographs or drawings, suitable for reproduction, of all kinds of plants, animals, and objects of interest. They cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JULY 8—Haverhill Sweet Pea and Rose Sh.

MONDAY, JULY 10—United Hort. Benefit and Prov. Soc. Com. meet.

TUESDAY, JULY 11—Nat. Sweet Pea Soc. Exh. in R.H.S. Hall, Westminster (2 days). Wolverhampton Floral Exh. (3 days). Saltaire and Shipley Rose Sh. Brighton Fl. Sh. (2 days).

WEDNESDAY, JULY 12—Bath Rose Sh. (2 days). Hereford and West of England Rose Sh. Elstree and Boreham Wood Hort. Soc. Sh. Crofton Fl. Sh. Woodbridge Fl. Sh. Guildford Fl. Sh. Hemel Hempstead Rose and Sweet Pea Sh. (2 days).

THURSDAY, JULY 13—Soc. Nationale d'Hort. de France (Paris) Exh. Bury St. Edmund's and West Suffolk Sweet Pea and Rose Sh. Leighton Buzzard Sweet Pea and Rose Sh. Potter Bar and Northaw Fl. Sh. Nat. Sweet Pea Soc. outing to Sutton Place, Guildford.

FRIDAY, JULY 14—West of Scotland Rose Sh. Nat. Sweet Pea Soc. outing to Wisbech Nurseries.

SATURDAY, JULY 15—Wood Green Fl. Sh. Edgware and Little Stanmore Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—69°.

ACTUAL TEMPERATURE—LONDON.—Wednesday, July 5 (6 P.M.): Max. 79°; Min. 58°.

GARDENERS' CHRONICLE OFFICE, 41, WELLINGTON STREET, COVENT GARDEN, LONDON.—Thursday, July 6 (10 A.M.): Bar. 30°4"; Temp. 77°; Weather—Sunshine.

PROVINCES.—Haverhill, July 5: Max. 79° Cambridge; Min. 57°; Ireland, N.W.

SALES FOR THE ENSUING WEEK.

FRIDAY.—A Collection of Established Orchids, also Imported Orchids, at 67 & 68, Cheapside, E.C., by Frotheroe & Morris, at 12.45.

The Show at Olympia.—The summer show of the Royal Horticultural Society, an event which has been so happily connected with Holland Park,

Kensington, has been held during the present week at Olympia. Our readers will remember with gratitude the extreme kindness of Mary Dowager Countess of Ilchester in placing her grounds on so many occasions at the disposal of the Society, and they will probably feel that the success of the Holland Park shows compelled the Council to continue the exhibitions, even though it was necessary to procure a fresh site.

By selecting Olympia, the Society has been able to hold its show almost next door to Holland Park, and this fact may have influenced the Council in the choice of building. It was not to be expected that any site at all comparable with Holland Park would be forthcoming, but it was felt that Olympia, although lacking the charms which characterise Lady Ilchester's historical and beautiful gardens,

nevertheless affords certain facilities for the holding of a flower show which cannot be obtained under canvas. Moreover, it was said that, whilst Olympia would be agreeable to visitors in the event of unfavourable weather prevailing during the exhibition, it would be possible, at the same time to illuminate the exhibition halls, and so to keep the show open until 10 o'clock in the evening.

It will be admitted that the task of arranging such a show was considerable. The immense area at the disposal of the Society, and the somewhat inappropriate character of the building for obtaining artistic effects were matters of great difficulty. In the main building, for instance, the staging erected covered an area of 33,000 square feet, besides 6,000 feet of staging in the galleries, and a large number of stands for the display of horticultural sundries. In addition, the annexe also provided an acre of ground available for exhibits. That the Society managed to get together an exhibition of such extent is a matter that should be remembered by those who may be disposed to criticise the details.

To attempt to compare the event with the Holland Park shows is scarcely a profitable task, the conditions being so unlike. Indeed, the Olympia show must be regarded as, in some degree, an experiment, and it will probably be felt that the experiment has not been altogether a favourable one. In the first place, whilst the buildings were especially suitable for a wet weather exhibition, the show was held under cloudless skies and a scorching sun that penetrated the building through the glass roof and heated the atmosphere to an extent that was as disagreeable to visitors as it was harmful to the plants and cut flowers. The Roses faded beyond recognition in a short space of time, and, although exhibitors did their best, by getting fresh flowers, to maintain a good display, the task was next to impossible. To a certain extent this state of things could have been prevented by shading the exhibits with a covering of art tinted muslin or tiffany, as is done in the case of most Continental shows, and the appearance of the building would likewise have been much improved. But even if this were done, it is thought by some exhibitors that the atmosphere would still be too dry for the welfare of the plants.

If such a show were repeated at Olympia, it might be possible to obtain better effects by still further raising the side stages and by providing tall Palms and plants of similar nature, to give a more furnished appearance to the somewhat unattractive interior. But we fear that the financial results of the show will not be favourable to a repetition of the experiment: this remains to be seen.

As is usual at the summer show, the Council entertained the Committees and judges at luncheon on the opening day when Sir Trevor Lawrence presided over a very large company. On the following day, the Council invited representatives of the over-seas Dominions to a reception and luncheon. The President, Sir Trevor Lawrence, again presided, and

amongst the speakers were Sir Daniel Morris, Sir Albert J. Gould, Sir Thomas Elliott, Sir Albert Rollet, and the Hon. C. H. Turner. On another page we print a list of those who accepted the Council's invitation, some of whom were, unfortunately, unable to be present.

British Botanists:
The Rev. J. S. Henslow.

Among the names of botanists held in honour by horticulturists that of Henslow will always occupy a high place, and it is with particular pleasure that we give the following brief outline of the life and work of the Rev. Professor J. S. Henslow, inasmuch as it is based on the lecture in the series on British Botanists which was given recently by his son, the Rev. Professor G. Henslow. Of the credentials of the son, who holds so secure a place in the regard of horticulturists, it is unnecessary to speak, though much of the biography of the father applies with equal force to the descendant.

Like his son, the Rev. J. S. Henslow was a student of science for the love of science, and by no means confined himself to one branch. His contributions to knowledge covered a wide range, and included geological, entomological, as well as botanical investigations.

Born in 1796, Henslow became Professor of Mineralogy in the University of Cambridge at the comparatively early age of 26. After holding this chair for some five years he was, on the death of Professor Martyn, elected to the Professorship of Botany in the same university.

As his biographer makes clear, Henslow took no narrow view of botany, nor did he confine it in practice to the then all-important systematic branch of the science. Thus we find him stating explicitly that "to ascertain the geographical distribution of a well-known species is a point of vastly superior interest to the mere acquisition of a rare specimen." This assertion which no botanist would now dispute is of particular significance in connection with the well-known fact that it was Henslow who sent Charles Darwin on a world-wide quest—in the "Beagle"—not only to obtain information concerning geographical distributions, but of other biological truths of the highest importance to science.

One of Henslow's first activities on succeeding to the Chair of Botany at Cambridge was to secure a botanic garden more worthy of the university. The old garden was small, and it was situated in the centre of the town on the site of the present science museums. In 1831 the gardens were transferred to their present site, though it was not until 15 years later that the first tree was planted.

In 1838 Henslow became Rector of Hitcham, and evinced his life-long passion for natural history by lecturing to the neighbouring farmers on such subjects as manures. He endeavoured also to induce the farmers to test Liebig's recommendation that gypsum should be added to manure-heaps in order to fix



NERIUM ODORUM
IN THE NEW PARK, INDORE, CENTRAL INDIA.

the ammonia. Unfortunately, we have no record of the success which met these enlightened and pioneer efforts.

Henslow's geological knowledge led to his discovery, which proved of great value to agriculture, that certain deposits at Felixstowe and other places contain phosphate nodules, known now as coprolites. Samples of the nodules sent by Henslow to Mr. (later Sir) John Lewes led to the commercial exploitation of these deposits, which provided a rich supply of phosphatic manure.

In conclusion we cannot do better than requote the concluding words from the memoir of the Rev. John Stevens Henslow by the Rev. Leonard Jenyns: "When a good man dies the world does not cease to benefit from those labours of love which he undertook for his fellow men. Though personally removed from them, his example remains; his voice, too, is still heard in the lessons left to be handed

particularly well at Indore. It does best in an open position and is propagated either by division, by layers, or by cuttings planted here during the rainy season or cold weather. The shrub bears flowers almost throughout the year, but it is at its best stage of blooming from about the end of November to the end of April. The foliage is supposed to be poisonous to cattle and anti-malarious. There are varieties also in cultivation here, which bear single and double flowers of white, rosy-pink, and dark pink colours, but the blooms are comparatively small, though equally as showy as those of *N. odorum*. The plant is indigenous in certain valleys and ravines in the north of the State along streams, where it produces masses of pink, white and red blossom. It grows freely in sunny situations, and is largely cultivated in Central India as a background for herbaceous borders and in large beds grouped for effect. The accompanying photographs show a single specimen plant (see Supplementary Illustration) and a hedge of *N. odorum*, with a foreground of *Sanchezia* and *Galphimia* (see fig. 2). I write at the end of April, when the hot weather is well

an annual event. The outing took place this year on Friday, June 30, some 30 members and friends being present. Those who journeyed by train were met at Slough station by Mr. VEITCH, and the ride to the Park was delightful, even though the air was cold and the skies cloudy. On arrival at East Burnham Park, the members enjoyed a walk through the gardens, the sub-tropical and wild gardens being especially admired. At the luncheon Mr. WILLIAM MARSHALL, Chairman of the Floral Committee, proposed a cordial vote of thanks to Mr. and Mrs. VEITCH. The visitors then inspected the Rose and kitchen gardens, where many subjects of interest were seen. Afterwards a game of bowls was played by some of the visitors. A somewhat augmented company including Sir J. DEWEY, Llewellyn, Bart., and Lady LLEWELLYN afterwards met at tea. Happily, the rain held off until the moment for the return journey.

BLACKBURN AND DISTRICT HORTICULTURAL SOCIETY.—In honour of the King's Coronation the Blackburn and District Horticultural Society



OLYMPIA SHOW.

FIG. 7.—COLLECTION OF FRUITS SHOWN BY THE DUKE OF PORTLAND: AWARDED THE "SHERWOOD" CUP.

(See p. 19.)

down to those who come after him. The influences of Professor Henslow's teaching have been felt in other places than those in which he taught, they have borne fruit far beyond the obscure neighbourhood in which he first sowed the good seed."

SUPPLEMENTARY ILLUSTRATION.—*Nerium odorum* is not so common in cultivation as *N. Oleander*, for, although the former species was grown in the Physic garden at Chelsea soon after 1680, the plant appears to have been lost to cultivation for some considerable time, and when re-introduced it was regarded as a novelty. *N. odorum* is a native of the East Indies, the other species being found in South Europe and the Levant. Our Supplementary Illustration shows a fine specimen of *N. odorum* growing in the New Park, Indore, Central India. Our correspondent sends us the following particulars:—"Nerium odorum, an evergreen shrub bearing clusters of sweet, fragrant, double flowers of rosy pink colour, each 2 inches across, in clusters of from 50 to 80 flowers, thrives par-

established and flowers have ceased to bloom in most parts of India, but our park is still gay and bright with blossom. *Lagerstremia indica* is in great beauty in several beds, especially the white variety, though the pink and purple varieties are also beautiful. *Galphimia* and the *Poinciana* shrubs (red and yellow), the common yellow *Tecoma*, *Lantanas* of various colours, and the pure white *Taberna montana* are all showy subjects at present in bloom. This park has been established not yet quite two years, but it is already a favourite resort for people of all classes. Roses and annuals have made a great show this season, and are scarcely yet over, whilst the collection of flowering shrubs and climbers is large and varied. A small pond recently excavated is already full of the lovely *Nymphaea* (*Lotus*), which is producing its large, pink blossoms in abundance."

R.H.S. COMMITTEES' OUTING TO EAST BURNHAM PARK.—The visit of the R.H.S. Committees to East Burnham Park, Slough, the residence of Mr. HARRY J. VEITCH, has become

provided buttonholes of Sweet Peas for 450 of the gentlemen who took part in the civic procession to the parish church on Coronation Day.

PYRUS USSURIENSIS AS A STOCK FOR PEARS.—Attention is drawn in the "Commonplace Notes" of the *Journal* of the Royal Horticultural Society (May, 1911), to the widespread use abroad of *Pyrus ussuriensis* (*P. sinensis*) as a Pear-stock. The species is common in the north island of Japan, whence seed is distributed, particularly to America, which country takes as much as 1,500 lbs. of seed of *P. ussuriensis* per annum. The writer of the note professes himself somewhat sceptical as to the merits of the stock, which is described as "a strong, healthy, vigorous-growing tree, with good foliage, calculated to withstand diseases and pests"; but he recommends that this stock should receive a trial in this country.

PUBLICATIONS RECEIVED.—*A Report on the Agriculture and Soils of Kent, Surrey, and Sussex*, by A. D. Hall, M.A., F.R.S., and E. J. Russell, D.Sc. (Board of Agriculture and Fisheries, 4, Whitehall Place, S.W.) Price 2s. 6d.

ROYAL HORTICULTURAL SOCIETY.

Summer Show at Olympia.

JULY 4, 5, 6.—The great summer show of the Royal Horticultural Society has been held this year at Olympia, Addison Road, Kensington.

Although the beautiful setting of the grounds of Holland Park was greatly missed, the new site provided certain advantages. There was, for instance, ample room, as well as abundant light, and the building allowed a better grouping of the exhibits, although this advantage was not put to the best use. Where the least formality of arrangement was observed—we refer now to the spacious annexe—there the best effects were produced. Indeed, the magnificent gardens arranged by Messrs. WALLACE CARTER, CHURCH CUTBUSH and BUNYARD in that part of the show were very beautiful. The tiers of staging in the main building gave a sense of too much formality, and the Society cannot apparently get away from the straight, formal table arrangement which obtains at all their exhibitions. Plants and flowers never appear so beautiful as when a natural arrangement is attempted, for when they are set out, as in a market, much of the effect is sacrificed. A few floor groups in the centre of the main building would have given a touch of the picturesque, which was lacking.

The great glass roof of the building required a light shading material, which, placed low down, would have hidden much of the ironwork of the building, and thrown the flowers into greater prominence.

Outstanding novelties in the exhibition were few, and Orchids less important than is usual at these shows. Hardy flowers were shown in greater numbers than ever, the rock and water gardens being especial features, whilst Stove plants, Roses, Carnations, Sweet Peas, Delphiniums, and Ferns were represented by imposing displays.

The president, Sir Trevor Lawrence, Bart., presided, on Tuesday last, at the usual complimentary luncheon offered to the judges and members of Committees, when speeches were delivered by the president and by Sir John Dilwyn Llewelyn, Mr. C. G. A. Nix, and Mr. W. Cuthbertson.

The organisation of a show of this character, on a fresh site and therefore in new conditions, involves a great amount of extra work for the Society's officials, but each and all did their utmost to make the event successful. For ourselves, we are especially indebted to Mr. Gaskell, Mr. Wright, Mr. Reader, and Mr. Plowman for their courtesy and help on this as on other occasions.

FLORAL COMMITTEE.

Present: W. Marshall, Esq. (in the Chair); and Messrs. T. W. Turner, R. C. Reginald Nevill, W. J. James, John Dickson, T. T. Bennett-Poe, J. Herbert Cutbush, H. J. Jones, W. P. Thomson, G. Reuthe, W. J. Bean, John Green, George Paul, W. B. Cranfield, Jas. Douglas, W. G. Baker, and C. R. Fielder.

ROSES.

MESSRS. S. BIDE & SONS, Ltd., Alma Nurseries, Farnham, Surrey, showed a collection of Roses in the gallery, which suffered badly from a draughty, exposed position. The best varieties included Liberty, Betty, Harry Kirk, Una, K. A. Victoria and Irish Elegance.

MESSRS. W. & J. BROWN, Peterborough, staged three show boards of Roses, each with 24 blooms, in variety. Dean Hole was especially good.

MESSRS. CANNELL & SONS, Swanley, Kent, showed a beautiful plant of American Pillar Rose carrying on one spray 125 buds and flowers.

MESSRS. BEN. R. CANT & SONS, The Old Rose Gardens, Colchester, showed a representative group of Roses. A best plant was had with

Rosa macrantha, Gustave Regis, Claire Jacquier, The Garland, and Hush Rambler. G. C. Waud, Mrs. Peter Blair, Hugh Dickson, Mme. M. Souper and other sorts were shown well in bamboo stands, and Mrs. O. G. Orpen, Commandeur Jules Gravenaux, Perle d'Or and Juliet in vases. A number of exhibition Roses arranged on boards were also included in the group.

MESSRS. FRANK CANT & CO., Braiswick Rose Gardens, Colchester, staged a beautiful central bamboo stand of the Lyon Rose and fine vases of Le Progrès, Tuscany, Rouge Angevine, Gottfried Keller and Mme. Alfred Tate. At the back were the varieties Débutante, Excelsa, René André, and Sweetheart, and in the front five exhibition boxes, each containing 24 blooms of miscellaneous varieties.

MESSRS. W. CUTBUSH & SONS, Highgate, N., included Jessie, Orleans Rose and Hiawatha in their effective display of Carnations and foliage plants.

MESSRS. A. DICKSON & SONS, Ltd., Newtownards, made a good display with 25 large

A. Chatenay, Edu Meyer, Mme. Ravary and Lyon Rose; also excellent blooms in vases of Irish Elegance, Irish Glory, Lady Hillingdon and Duchess of Wellington. The group suffered somewhat from the want of a suitable background.

MESSRS. HOBBIES, Ltd., Dereham, Norfolk, arranged a large group of Roses in the annexe to illustrate the decorative value of the ramblers in covering temples, arches and pergolas. American Pillar, Hiawatha, Excelsa, and White Dorothy Perkins were well shown, but the galvanized ironwork was too conspicuous.

MESSRS. GEO. JACKMAN & SON, Woking Nurseries, Surrey, arranged a group of Roses in the gallery, which included the varieties Alberic Barbier, Lyon Rose, Mrs. Aaron Ward and Duchess of Wellington.

MR. PHILIP LE CORNU, High View Nurseries, Jersey, displayed two stands of the new Cherry-Rose-coloured Hybrid Tea Rose Mrs. Philip Le Cornu, which showed to advantage against a black-velvet background.



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FIG. 8.—PERGOLA SHOWN BY MESSRS. PULHAM AND SON.

(See p. 16.)

bamboo stands of new Roses and a number of vases. The choicer varieties included Firebrand (single), Mrs. Fred. Straker, Viscount Carlow, Caroline, Duchess of Wellington, Dorothy Page Roberts, Mrs. Cornwallis West, Mrs. Leonard Petrie, and H. V. Machin.

MESSRS. HUGH DICKSON, Royal Nurseries, Belfast, in a group staged in the gallery, showed a unique collection, of which every bloom represented a variety of their own raising. Mrs. E. Allen and Leslie Holland secured Awards. Mrs. Sam Ross (flesh) and George V. (crimson-purple) were especially good. Lady Pirrie, Countess of Shaftesbury, Mrs. R. D. McClure, and W. K. Hendrick were also very finely shown.

MESSRS. R. HARNESSE & CO. Hitchin, staged bamboo stands filled with good blooms of Mme.

MESSRS. STUART LOW & CO., Bush Hill Park, Middlesex, staged one of the most tastefully arranged groups of Roses. Moss-covered columns furnished with Lyon Rose and Mme. A. Chatenay were particularly good. Other stands included the varieties Killarney, Mme. Ravary, Frau K. Druschki, Duchess of Wellington, and White Killarney, and there were also vases and bowls of Gräfin Zeppelin and Marquise de Sinety.

MR. JOHN MATTOCK, New Headington, Oxford, arranged an interesting collection of Roses in the gallery. The background of Ramblers included Rubin, Mrs. Flight, The Garland and Bennett's Seedling. Lady Curzon, Simplicity, Hebe's Lip and Crimson Danask were well shown on bamboo stands, and Belle Fleur and Marie van Houtte in vases.

Mr. R. C. NOTCUTT, Woodbridge, Suffolk, showed some good Roses on the tiered staging. The best varieties included Gottfried Keller, Rosette of the Legion of Honour (pillar), Mrs. Aaron Ward, Geo. C. Waud, and Souvenir de Stella Gray.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, arranged a representative group in the annexe. A hedge of Leuchstern was admired with some plants of old Crimson Moss. Paul Transon, Goldfinch. Rubin, François Foucard, Robert Craig and Blush Rambler were the best Ramblers. Triangular beds contained Pharisæer, Irish Glory, Mme. T. Roosevelt, Rev. A. Cheales, and Sénateur Marcurand. The centre bed was a striking arrangement of Shower of Gold, around the base of which were planted Jessie and and Orleans Rose.

Messrs. WY. PAUL & SON, Ltd., Waltham Cross, exhibited the most important collection of Roses in the show. Standards of Hiawatha, Dorothy Perkins, Lady Gay and Tausendschön were effectively arranged in a carpet of Aschen-

ianas. Flame, Elisa Robichon and Rubin were also well shown.

Messrs. A. A. WALTERS & SON, Kensington Nurseries, Bath, showed Blush Rambler, Alberic Barbier, and a number of Hybrid Tea varieties.

Mr. CHRISTOPH WEIGAND, Soden a/Taunus, Germany, showed a few plants of the variety Sodenia, which is claimed to be a carmine-red Dorothy Perkins with all the other good attributes of that well-known variety.

CARNATIONS.

Messrs. R. H. BATH, LTD., Floral Farms, Wisbech, staged Winsor, White Enchantress, President and a few other varieties of Carnations.

Mr. BERTIE E. BELL, Castel Nursery, Guernsey, made a pretty display with a good collection of perpetual-flowering Carnations, including Alma Ward, Mikado, and Rose Doré. The tasteful arrangement in white baskets against a background of silver-grey produced an excellent effect.

and many other of Mr. DOUGLAS's seedlings were included in the exhibit.

Mr. A. F. DUTTON, Iver, Buckinghamshire, showed a good collection of perpetual-flowering Carnations White Fair Maid, Alvina, President Seelye, Rose Doré, also a few Souvenir de la Malmaison varieties, including Maggie Hodgson and Princess of Wales.

Mr. C. ENGELMANN, Saffron Walden, Essex, staged blooms of Carnations Carola, May Day, La Mode, Harlequin, Rex, Gloriosa, Beacon and others in fine form.

W. M. GOTT, Esq., Trenythron, Par Station, Cornwall (gr. Mr. G. Hillman), had an appropriate centre-piece of Carnation Mrs. Trelawney, and showed other good blooms of Princess of Wales, The Queen, Yaller Gal, Thora, Mercia, Monk and other Souvenir de la Malmaison varieties.

E. J. JOYNSONE, Esq., Burr Wood, Groombridge, Kent (gr. Mr. A. T. Paskett), made one of the most effective displays of colour in the hall on the tiered staging with plants of the pink



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FIG. 6.—GENERAL VIEW OF THE EXHIBIT ON AS SEEN FROM THE GALLERY.

brodel, Jessie, Cecile Brunner, Orleans and other dwarf Polyantha varieties. A fine background was made with Ramblers and tall Standards—Lady Gay, Hiawatha, Paradise, Delight, Milky Way and White Dorothy. The foreground was filled with baskets of Hybrid Teas, including Elaine, Cynthia, Geo. C. Waud, Arthur Goodwin, Lady Downe, and Frances Charteris Seton.

Mr. GEO. PRINCE, Oxford, staged many fine Hybrid Teas, including Souvenir de Stella Gray and White Killarney, and Molly S. Crawford, with a background of Ramblers. Mildred Blackburne is a new, small-flowered, and very vigorous seedling H.T.

Mr. CHAS. TURNER, Slough, showed a group of Roses on the tiered staging, which included a number of new seedlings. The soft-pink-flowered seedlings of R. Brunonia and the Damask Rose were exceedingly pretty. Coronation (bright crimson), and Edith park were new W. Loma-

Mr. H. BURNETT, Guernsey, had a fine centre-piece of Carnation R. F. Felton, flanked by Mikado on either side, and with the white Niagara and the yellow-ground Fancy Orpheus below. The variety Mrs. C. F. Raphael was particularly good, and Marmion, Afterglow, Vulcan and Mrs. C. W. Ward were also noticeable.

Messrs. H. CUTBUSH & SONS, Highgate, showed the new Malmaison Viscountess Goschen, also Princess of Wales, Monk, Yaller Gall, and O. P. Bassett of this type, together with the white Alma Ward, May Day, Fortuna and other perpetual-flowering varieties. The whole group was very tastefully arranged with Codiaums (Crotons) and other foliage plants.

Mr. JAS. DOUGLAS, Edenside, Great Bookham, showed a fine collection of border varieties of Carnations. Elizabeth Shifner, The Gaffer, Mrs. Berkeley, Hercules, Mrs. R. Gordon, Helen Goudie, and Rachel, Ellen Douglas, John Ridd

Princess of Wales and a few clumps of the crimson H. J. Jones Carnations. The plants were mostly two to three years old in 10-inch pots and carried some very fine flowers. On the 3-feet staging White Perfection, Royal Purple, May Day and other perpetual-flowering varieties were arranged.

Mr. H. LAKEMAN, Thornton Heath, Surrey, arranged 27 vases of border Carnations. Lady Hermione, Sir Galahad, Linkman, The King, Miss Willmott, Queen Alexandra and Ellen Douglas were the most distinct varieties.

Mr. G. LANGE, Hampton, made a good display with market perpetual-flowering varieties of Carnations arranged in glass vases. The varieties Red Lawson, Beacon, Fair Maid, Aristocrat and Britannia were included.

Messrs. STUART LOW & Co., Bush Hill Park, arranged one of the most decorative displays of Carnations with a good use of Nepenthes and

other Ferns and hanging baskets. The varieties included the new orange "Malmaison," Lady Mary Hope, the pink Irene, the soft pink-faked Maggie Nettlefield, The Colonel, King Oscar, C. E. Little and other good sorts, in addition to the standard varieties of the American Carnation.

FRANK MAY, Esq., Houndswood, Radlett, Herts. (gr. Mr. T. F. Stannett), showed a collection of Souvenir de la Malmaison Carnations which were arranged in a semi-circular group. Princess of Wales was the leading variety, but Maggie Hodgson, Cecilia, Dragut, Mrs. Trelawney and Houndswood Beauty were also well shown.

THE SOMERFORD NURSERIES, Christchurch, showed a small group of Carnations prettily arranged in wicker baskets, the white blooms in a brown basket and the pink blooms in white baskets looking especially well.

THE THATCHAM FRUIT AND FLOWER FARM, near Newbury, arranged a pretty group of Carna-

all shown to advantage in a tasteful arrangement with Smilax.

Mr. J. D. WEBSTER, Market Avenue, Chichester, showed a small group which included the varieties Mikado, Winona and Delight.

Messrs. YOUNG & Co., Cheltenham, displayed collections of perpetual-flowering Carnations such as White Perfection, Hon. Lady Audley Neeld, Cheltonia, and Mrs. Greswolde Williams.

BEGONIAS AND GLOXINIAS.

Messrs. BLACKMORE & LANGDON, Twerton Hill Nursery, Bath, staged a rich collection of tuberous-rooted Begonias. The varieties Lena, Fleur de Chrysanthe, and Mrs. Bilkie appeared to advantage in baskets. A strain of frilled singles was included, and of the doubles Rose Superb, Lady Tweedmouth, and Mamie Warburton (pink and salmon), George Pike and Royal George (scarlet), Mrs. W. L. Ainslie, and M. Gwillim (yellow), and Florence Nightingale

Mr. A. L. Gwillim, Cambria Nursery, Sidcup, Kent, showed a collection of tuberous-rooted Begonias carefully arranged in a colour scheme, in which the white varieties were associated with pinks and salmons, and the yellow varieties with orange and scarlet, the groups being separated by a batch of single-flowered varieties. Avalanche, Ringwood Peach, Sultan, Primrose, Miss Muriel Edmondson, Mrs. H. Harris, and M. Gwillim were among the choicest sorts included.

Messrs. JOHN PEED & SON, Mitcham Lane, Streatham, showed a choice strain of Gloxinias in many colour varieties, and a good batch of Streptocarpuses, the group being relieved with a free use of Nephrolepis Ferns.

Messrs. T. S. WARE, Ltd., Feltham, Middlesex, sent a large collection of tuberous-rooted Begonias with a wide colour range. The feature of the group was the large batch of the lovely pink Lady Cromer variety. The salmon and pink varieties included Maud Nickells, Capt. Lafone,



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FIG. 10.—MESSRS. H. B. MAY AND SONS' GROUP OF FERNS: AWARDED THE "CORONATION" CUP.

tions relieved with a free use of Asparagus plumosus and having a background of green velvet. Standard varieties such as Rose Doré, Winsor and Enchantress were employed.

Mr. CHAS. TURNER, Slough, made a good display of "Malmaison" Carnations of the varieties Princess of Wales, Maggie Hodgson, Mrs. Trelawney, Lady Middleton and Blush.

Messrs. J. VEITCH & SONS, LTD., Chelsea, showed a number of Souvenir de la Malmaison varieties, including Dragut, Lady Coventry, Souvenir de la Malmaison, Mrs. Trelawney and Princess of Wales.

Mr. C. F. WATERS, Balcombe, Sussex, showed a valuable collection of perpetual-flowering varieties of Carnations, of which Edith Waters (cerise) was the most distinct and good. Aurora, Mikado, Britannia and White Perfection were

Avalanche, Beatrice Mabbett, and Eileen Fitzgerald (white) were, perhaps, the choicest examples.

Messrs. H. CANNELL & SONS, Swanley, Kent, made a very ornamental display of tuberous-rooted Begonias, of which the chief feature was the fine collection of whites in the centre—Snowdon, Her Majesty, Polar Star and Countess of Ross in a setting of Adiantum Ferns. Salmon and pinks were placed right and left, and at the ends the yellow and orange Sunset and Sunflower. The scarlet bedder Washington over variegated Funkias made a good edging to the group.

Messrs. JAMES CARTER & Co., Raynes Park, staged a decorative group of double Begonias, Gloxinias, Petunias, Streptocarpuses and yellow-flowered Richardias.

Pink Pearl, Mrs. J. B. Blackmore and Lady Ebury. Mrs. W. Ainslie was the best yellow variety. Scarlets were represented by Patrick Ainslie and Miss F. Harnar. Strains of crested singles (cristata) and frilled (crispa) varieties were also included in the group.

FERNS.

The Coronation Challenge Cup for the most meritorious exhibit at the show was awarded to Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, for a magnificent collection of Ferns. The centre of the stand was occupied by a group of Nephrolepis Marshallii compacta, arranged in the form of a circular shield. This delicately beautiful Fern was a mass of billowy verdure, a veritable triumph of cultural skill. A few tall

Tree-Ferns (*Dicksonia squarrosa* and *Hemitelia Smithii*), and many slender pillars of *Lygodium* (chiefly *L. japonicum*), trained on Bamboo stakes stood well up from the mass of more lowly-growing Ferns and rendered the group very light and pleasing. Here and there such choice examples as *Nephrolepis Nebertii*, *Athyrium plumosum* *x* *ministeriae*, *Nephrolepis superbissima*, *Drymoglossum spatulatum*, with strange-looking un-Fern-like fronds, *Gymnogramme schizophylla gloriosa*, *G. elegantissima* and *Nephrolepis Amer-publii* were raised to catch the eye. Besides the *Drymoglossum* named, other examples of uncommon form were *Polypodium vacciniifolium album*; *Adiantum asarifolium*, which may be described as having single fleshy pinnae 2 to 4 inches across, arranged on very slender stalks; *Deparia Moorei*, *Davallia tenuifolia Veitchii*, *Polypodium*, *Xiphias*, and *Hymenodium crinitum* with entire fronds 10 inches long by 7 inches broad, and having long, brown hairs on each surface. Amongst other Ferns were *Athyrium filix-femina gemmatum*, *A. f.-f.* *congestum grandiceps*, and *Nephrolepis Mayi cristata*. *Branea insignis* has brightly-coloured young fronds, as also has *Adiantum Veitchii*. *Adiantum macrophyllum* has perhaps the brightest-coloured young fronds of all, with those of *A. pulverulentum* coming second.

At the far end of the annexe Messrs. J. HILL & SON, Barrowfield Nurseries, Lower Edmonton, had an enormous group of Ferns. Tall Tree-Ferns, such as *Cibotium Schiedei*, *Dicksonia antarctica*, *D. squarrosa*, *Hemitelia Smithii* and *Cyathea dealbata*, with broad heads, towered at the back, and dwarfier sorts, such as *Blechnum brasiliense* and *Lomaria attenuata*, rose up from a groundwork of terrestrial Ferns. One would not unreasonably expect a group composed solely of Ferns to be simply made up of shades of green, but in the group under notice there was plenty of colour variety besides that given by the very dark green of *Davallia pentaphylla* and *D. njensis*, leading through the medium shades of *Dicksonia Barometi* (of which a fine clump was shown), *Polypodium Knightiae*, and on to the lighter greens of *Nephrolepis Whitmannii*, or the young fronds of *Adiantum* of many kinds. Bright colour was given by the young fronds of *May Ferns*, such as *Davallia retusa*, *Blechnum latifolium*, *B. insignis*, *Adiantum Veitchianum* and *A. Hendersonii*. The "Gold" and "Silver" Ferns (*Gymnogrammes*) all lent their aid in this colour scheme, and *Litobrochia Vespertilionis* supplied a glaucous tone.

In the East Gallery Mr. H. N. ELLISON, Bull Street, West Bromwich, staged a neat arrangement of Ferns and *Dracaenas*. The best of the well-grown Ferns were *Davallia tenuifolia Veitchii*, *D. epiphylla*, *Polypodium glaucum crispum*, and *Nephrolepis lycopodioides*.

SWEET PEAS.

Mr. W. E. ALSEN, Denmead, Hampshire, showed some finely-grown Sweet Peas in 60 vases and stands. Moneymaker, Minnie Furnell, Yellow King, Thos. Stevenson, Elsie Herbert, and Mrs. Hugh Dickson were the leading sorts.

Sir RANDOLPH L. BAKER, Bart., Ransdon, Blandford (gr. Mr. A. E. Usher), had some of the finest Sweet Peas in the show. Doris Usher, Nettie Jenkins, Isobel Malcolm, Lavender, George Herbert, Stirling Stent, and Etta Dyke were among the best varieties. Tall pillars, rising 8 feet from the table, were effective in giving variety to the arrangement.

Messrs. S. BIDE & SONS, Alma Nurseries, Fencham, Surrey, staged more than 70 vases of Sweet Peas, having Orange King, Dudley Lee, Florence Nightingale, Bertha Massey, and other standard varieties.

Mr. JAMES BOX, Lindfield, Sussex, made a large display of flowers arranged mainly in metal holders.

Mr. C. W. BREADMORE, High Street, Winchester, showed over 100 vases of the best varieties of Sweet Peas, Chas. Foster, Freda, Dazzler, Nettie Jenkins, Mrs. Townsend, Elsie Herbert, Mrs. C. W. Breadmore, Maud Holmes, and Princess Juliana being particularly good.

Messrs. JAMES CARTER & CO., Raynes Park, Wimbledon, made a pretty display of Sweet Peas in vases and bowls, having excellent bunches of Chas. Foster, True Lavender, Helen Grosvenor, Evelyn Hemus, Mrs. H. Dickson, and Earl Spencer.

Messrs. CARTER PAGE & CO., London Wall,

made a bold display with large clumps of the best sorts arranged on the tiered staging. Asta Ohn, Isobel Malcolm, Helen Lewis, Frank Dolby, James Grieve, Edrom Beauty, and Marjorie Linzee were all well shown.

Mr. WM. DEAL, Brooklands, Kelvedon, Essex, exhibited a small group of well-grown novelties.

Messrs. DOBBIE & CO., Edinburgh, made the richest display of Sweet Peas in the show. Tall stands filled with beautiful sprays of Lady Knox, Nubian, Mrs. Heslington, Edrom Beauty, Etta Dyke, and Red Star, and over 80 vases of the best varieties gave a gorgeous display of colours. Melba and Dobbie's Cream made a particularly beautiful association of tints. The group was relieved with a free use of Palms, Smilax, and Kochias.

Messrs. GILBERT & SON, Dyke, Bourne, Lincs., made a pretty display of Sweet Peas and Lilies in the gallery. Lady Florence Willoughby and Safrano were very good. The Lilies included *L. dalmaticum* Catani and *L. album*.

Messrs. JARMAN & CO., Chard, Somerset, showed a number of unnamed varieties associated with their new Centaureas, Bridegroom, The Bride, and Honeymoon.

E. J. JOHNSTONE, Esq., Burrowswood, Groombridge, Kent (gr. Mr. A. T. Paskett), showed a collection, which, in addition to some good unnamed seedlings, included the varieties Mr. W. F. Unwin, Senator Spencer, Lavender Geo. Herbert, and Mrs. C. W. Breadmore.



OLYMPIA SHOW.

FIG. 11.—CORONATION CHALLENGE CUP.

ANGELUS M. C. H. E. MAY & SONS, GROOMBRIDGE, KENT.

Messrs. JONES & SONS, LTD., Cotton Hill Nurseries, Stroud, staged 60 glass vases of Sweet Peas on 3-foot staging.

Messrs. KELWAY & SON, Langport, Somerset, erected a Bamboo pergola, which was rather un-naturally but very prettily decorated with Sweet Peas. Their best vases were furnished with blooms of Constance Oliver, Elsie Herbert, Evelyn Hemus, Paradise Ivory, Mrs. Townsend, and Mrs. C. W. Breadmore.

Messrs. E. W. KING & CO., Coggeshall, had a good stand of over 70 vases of Sweet Peas effectively arranged in masses of one colour. The Marquis, Mrs. Harcastle Sykes, Evelyn Hemus, Anglian Orange, Anglian Blue, Queen Mary, Frank Dolby, and Clara Curtis were excellent.

Messrs. JOHN K. KING & SONS, Coggeshall, Essex, staged 50 vases of Sweet Peas in the gallery. Their best varieties were Mrs. H. Dickson, Queen of Spain Spencer, Edrom Beauty, Mrs. A. Malcolm, Paradise Ivory, and Harold.

Messrs. G. STARK & SON, Great Ryburgh, Norfolk, staged 50 stands of choice varieties, of which Madeline Cole, Lord Northcliffe, Mrs. C. W. Breadmore, Etta Dyke, and Loyalty were, perhaps, the most distinct.

Messrs. SUTTON & SONS, Reading, made a very

beautiful display, having bold columns of one colour and smaller batches of varieties arranged in "colour schemes," salmon and light blue, cream and mauve, &c. The varieties Southcote Beauty, Royal Rose, Doris Usher, Butterfly, Mrs. R. Hallam, and Elsie Herbert were outstandingly good.

Messrs. ROBERT SYDENHAM LIMITED, Tenby Street, Birmingham, arranged 50 stands, including such varieties as Maud Holmes, Emperor, Florence Nightingale, Edith Taylor, Thos. Stevenson, and Mrs. Harcastle Sykes.

Messrs. E. WEBB & SONS, Wordsley, Stourbridge, arranged a large trophy of Sweet Peas as a centrepiece to their display of vegetables and fruit.

Other exhibitors of Sweet Peas were:—Mr. W. G. LAMBERT, Huntingdon; Mr. SAM LARKIN, Ridgways, Haslemere (gr. Mr. G. M. Hale); and Mr. J. D. WEBSTER, Chichester.

MISCELLANEOUS.

A Japanese garden provided by Messrs. JAMES CARTER & CO., Raynes Park, was an exhibition in itself. The design was exceedingly well conceived, and the garden so skilfully planted that, whilst there was no overcrowding of the various plants used, the plants had all the appearance of being fully established. At the entrance a fine Japanese umbrella Pine (*Sciadopitys verticillata*) towered up from a grassy mound. On one side was a quaint well with its rope and wooden bucket. Around the well stood dwarf Oaks, Larches and other trees growing in shallow pans, and apparently of great age. Stone lanterns and a six-tiered stone pagoda, mellowed with age, were skilfully placed, and around them were sufficient plants to prevent any suspicion of nakedness, but not enough to hide any essential portion of the structures. A winding lake, spanned by a wooden bridge, occupied the middle portion of the exhibit. The lake was supplied with water from a rocky elevation at one end, giving an air of reality to the garden. Fine groups of Iris *Kämpferi*, Bamboos in variety, weeping Birches, Japanese Maples, and various well-grown Conifers gave the whole an air of lightness and completeness. Bronze storks were silently fishing in the lake, and cleverly-trained birds of growing Larch mutely surveyed the scene.

Messrs. JAMES CARTER & CO. also filled a long space of tabling with a varied collection of flowering plants. At the end were fine hybrid *Streptocarpus* surrounding a few plants of tuberous-rooted Begonias with huge flowers of good form and bright colours. Also vases of excellent Sweet Peas, double-flowered Petunias and Arum Mrs. Roosevelt.

Messrs. JAMES VEITCH & SON'S, LTD., Chelsea, showed a group of foliage and flowering plants of exceeding beauty. Around tall Palms were nicely-graded mounds of choice flowering plants. The centre mound consisted of many gorgeous Orchids—*Laelio-Cattleyas*, *Cattleyas*, *Cypripediums*, *Odontoglossums*, with an occasional plant of *Odontoglossum*, *Renanthera Imshoottiana*, *Odontoglossum*, *Renanthera Imshoottiana*. At each end stood a Pitcher plant, *Nepenthes Curtisii superba*, with a number of fine pitchers, and N. Sir William Thiselton-Dyer, with a smaller number of huge pitchers, raised on an *Asparagus Sprengeri* covered stand some 8 feet high, and around them were grouped *Solanum Wendlandii*. Near to the front were a couple of fine plants of *Aralia elegantissima*, surrounded with scarlet *Kalanchoe flammea*. The spaces between these raised groups were filled with such fine stove plants as *Alocasias*, *Dracaenas*, *Codaeums*, and some richly-coloured *Caladiums*. Towards the front there were some rare forms of Begonia Rex (B. Leontre, B. Bowringiana, B. The Queen, and B. Catherine Schmidt), a few plants of *Anthurium Scherzerianum* with enormous spathes, and a well-grown group of *Nephrolepis Marshallii* compacta. Messrs. VEITCH also furnished an uncommon arrangement of *Fuchsias* trained obliquely on a flat arrangement and brought together in pairs to represent the rafters of a glass-house. Beneath these were arranged small groups of flowering plants, such as *Streptocarpus*, *Malmaison* carnations, dwarf *Camassas*, *Solanum Wendlandii*, *Exacum macranthum*, and a group of fine *Gloxinias*. Begonia Washington, a very dwarf, double-flowered, scarlet, tuberous-rooted variety, comprised the groundwork of a very attractive and an exceedingly meritorious exhibit.

Mr. L. R. RUSSELL, Richmond Nurseries, appears to stand quite alone as an Ivy specialist, and his exhibit of these plants was an especially fine one. It included a large variety of standard plants, well arranged with a groundwork of dwarfier plants, and bordered with a row of the variegated *Hedera elegantissima*. The standards, which are grafted on stout stems of the Irish Ivy, consisted chiefly of a number of *Hedera flavescentis*, with plenty of golden leaves. Chief amongst the silver-leaved forms were *Hedera Helix maderensis variegata*, *H. elegantissima*, and *H. dentata variegata*. Amongst the green-leaved kinds, we noted *Hedera minima* with erect stems and small leaves, the weird conglomerata prostrata, and rhomboida obovata. Mr. RUSSELL also staged a group of ornamental foliage plants, such as *Anthurium regale*, *A. crystallinum*, *Alcascia nobilis*, *A. Watsoniana*, *Cyanophyllum magnificum*, *Maranta Massangana*, *M. insignis*, and *Aralia elegantissima*. This collection also contained such little stove gems as *Anacochilus petola*, *A. intermedia*, *Sonellaria argentea*, densely-fruited *Nertera depressa*, and the bright-foliaged *Saxifraga sarmontosa tricolor*.

Messrs. FROMOX & SONS, Sutton Court Nurseries, Chiswick, contributed a splendid collection of Japanese Maples, for which they are noted, and other hardy shrubs. This exhibit occupied a space some 50 yards in circumference, and contained a large number of choice specimens. The colours of the Maples were admirably blended, and the judicious use of green and variegated-leaved Bamboos gave the group a most charming appearance. The most attractive Maples were *Acer palmatum versicolor*, *A. p. roseum marginatum*, *A. p. laciniatum*, *A. p. rufescens*, *A. p. septemlobum atro-purpureum*, *A. p. dissectum variegatum*, and *A. japonicum aureum*; and many uncommon shrubs were included in the group.

We are accustomed to see finely-grown Caladiums from Messrs. JOHN PEED & SON, West Norwood, and at this exhibition that firm's display was of a high standard of merit. Many of the varieties, although they had very large leaves, looked almost too delicate and fragile to be real. Messrs. PEED also set up a table in the gallery, filled with hybrid *Streptocarpus* and a very fine collection of *Gloxinias*. The *Gloxinias* bore large, fresh, erect flowers of many shades of colour.

Messrs. GEO. JACKMAN & SONS, Woking Nurseries, had a fine collection of all sections of *Clematis* arranged in a large semi-circle bordered with *Hydrangea hortensis* and *Adiantum* ferns. Most striking amongst the many densely-flowered plants were King Edward VII. (pure violet), *Ville de Lyon* (bright carmine-red), *ascotensis* (large, azure-blue), *Jackmanii rubra*, *La France* (violet-purple), *Mme. Boisselot* (large white), *Mme. Grange* (crimson-violet), *Sensation* (satin-mauve), *Lady Northcliffe* (a deep lavender-blue fading to a Cambridge blue), and *Beauty of Worcester*.

Messrs. J. CHEAL & SONS, Crawley, Sussex, occupied to good purpose a portion of the ground floor in the annexe. A substantial yet lightly-designed pergola, well covered with cluster Roses, *Clematis*, vines, and *Ivies*, ran nearly the whole length of the space allotted to them. Parallel with the pergola were arranged groups of ornamental foliage and flowering trees and shrubs, including *Quercus concordia* and *Gleditsia japonica*. At the end was a lightly-arranged rock-garden surrounding a wooden summerhouse. Conspicuous amongst the rock plants were *Lythrum elatum*, *Potentilla formosa*, *Campanula trachelium grandiflora*, an English Iris "La Jolie," and the large-flowered *Lychnis Haageana*.

Mr. V. SLADE, Staplegrave Nursery, Taunton, contributed a bright collection of cut blooms of Zonal and Ivy-leaved *Pelargoniums*. There was a wide range of clear and distinct shades of colour. The new Ivy-leaved variety Miss Popham supplied a new shade of colour, being bright pink with tinges of terra-cotta at the base of the petals.

Messrs. H. J. JONES, Ryecroft Nursery, Lewisham, had one of the brightest-coloured exhibits at the show. It consisted of a broad band of large-headed Phlox fronted with a very fine collection of Zonal *Pelargoniums*.

New hybrid *Acalyphas* and *Fuchsias* were shown by Mr. GEORGE TRUIEL, Quellinburg, Germany. The best of the *Acalyphas*, which were of the *A. bipala* type, but lacking the

bright colour of that species, was *A. camphauseniana*.

Messrs. JULIUS HANSEN, Pinneberg, Germany, brought a selection of dormant Lily of the Valley crowns of various grades and Dog Briar seedlings (*Rosa canina*), so much used in Germany as a Rose stock. The same firm also showed a working model of the machine used in most nurseries in Germany for packing dormant trees and shrubs.

Mr. PHILIP MARTINEAU, Twyford, Berks., arranged a small group of uncommon-coloured biennial *Salvias*.

Messrs. CUTBUSH & SON and Messrs. J. PIPER & SON showed good examples of topiary work.

Mr. CARLION WHITE, New Bond Street, London, had a smaller and less trim collection of clipped trees and shrubs.

HARDY PLANTS.

Mr. MAURICE PRICHARD, Christchurch, Hampshire, arranged a more or less kidney-shaped exhibit of hardy plants, grouping it freely with bold masses of *Iris levigata* (Kämpferi), *Daylilies*, *Kniphofias*, *Spiraeas*, such as *S. palmata* and *S. Aruncus*, *Thalictrums*, and Bamboos, all of which were very suggestive of the water-side garden it was intended to be. Water plants were freely introduced into the pools, and bold border plants gave a rich display of colour, whilst grasses afforded lightness and elegance to the whole. The group was of a very imposing character.

A magnificent terrace, wall, rock and water-garden, with sculptuous herbaceous borders, designed and arranged by Messrs. R. WALLACE & CO., Colchester, was one of the most attractive features of this exhibition. Grassed banks and meandering streams with Water Lilies and waterside planting, first met the eye. Following these came a low retaining wall, supporting the terrace garden above, while on all sides was a splendid array of border plants, giving colour, variety, and beauty to the whole. On a painted background was a replica of a recently-erected pergola, blending well into the general scheme. Hemmed by Conifers, here was gardening in the truest sense in every direction. The whole idea was admirably conceived and well carried out.

Not far away from this exhibit Messrs. WM. CUTBUSH & SONS, Highgate, had, in a more open space, set up an exhibit of bold water-garden and waterside planting, the boldest and most imposing of this particular phase of gardening to be found in the exhibition. Huge Gunneras, Bamboos, *Senecios* of giant stature, masses of Ferns and Japanese *Irises* all played their part in the general arrangement; while Water Lilies abounded in variety and beauty in well-arranged pools. Lilies were a great feature among flowering plants, and among a large number we remarked splendid examples of *L. giganteum*, *L. Henryi*, *L. Brownii*, *L. pardalinum*, and *L. superbum*. At the opposite side, and quite hidden by banks of other subjects, was a border of hardy herbaceous plants.

Of quite a different character still, for, as though by some pre-arranged motive, no two exhibits were alike, was a rock-garden, Fernery, and pergola, displayed by Messrs. FULHAM & SON, Oxford Street, London, the like of which we have never seen finer or more naturally executed. Whether pergola (see fig. 8), paved walk, the disposition of great masses of sandstone rock, or the planting in general of shrub, rock, or flowering plant, they were all happily associated and in pleasing harmony.

In still another direction in the spacious annexe, Messrs. J. CHEAL & SONS, Crawley, set up an excellent rock-garden exhibit in sandstone, together with pergola, border, summer houses, and the like, planting the former with fine groups of *Potentillas*, *Primula capitata*, the handsome *Sedum Mawianum*, *Gypsophila prostrata rosea*, *Alstromeria revoluta*, with flowers of a rich shade of orange, *A. chilensis*, and other suitable subjects.

Messrs. G. BUNYARD & CO., LTD., Maidstone, exhibited a flower border in conjunction with a water-garden. The result was in every respect excellent. The water garden was the feature of this exhibit, the masses of Water Lilies being most effectively arranged. *Delphiniums* were finely shown, the most conspicuous being the variety *Rev. E. Lascelles*. *Astilbes* were grouped near the water, and numerous choice Alpines,

with the rare *Pinus Montezuma* and *Carpenteria californica*, were included in the exhibit.

At the other extreme of the annexe Messrs. T. S. WARE, LTD., Feltham, arranged a rock and water garden, covering a space of 1,200 square feet, arranging and grouping in delightful fashion a remarkable variety of plants. Most striking of all, perhaps, was the lovely pink-flowered *Erythraea diffusa*, though not less delightful was an admirable grouping of *Hypericum ceris*, the Heath-like shoots terminating in golden-yellow flowers, *Sempervivum*, covered with a cobweb-like growth, were set in horizontal fissures of the rockwork, and hardy Ferns were employed in a similar manner.

In quite a cool and shaded spot beneath a balcony Messrs. H. J. JONES & CO., LTD., Lewisham, had a rich display of herbaceous Phloxes, admirably grown, and showing to considerable advantage. Elizabeth Campbell (soft pink), Antoine Mercier (mauve and white), Selma (light salmon), Frau Antoine Buckner (snow-white), Meteor (rosy-pink), and Dr. Charcot (deep heliotrope) are a representative set of the best of these plants.

Messrs. R. H. BATH, LTD., Wisbech, had a rich display of *Delphiniums*, the rich blue and white of *Rev. E. Lascelles* constituting one of the more conspicuous variety of a large and representative gathering.

Messrs. LILLEY & CO., Guernsey, were the exhibitors of a great variety of Japanese *Irises* and early *Gladioli*.

Messrs. RICH & CO., Bath, displayed Phloxes, *Pentstemons*, *Scabiosa caucasica*, and other hardy flowers.

Mr. W. J. GODFREY, Exmouth, staged a particularly good strain of *Campanula medium* (Canterbury Bells), the flowers varying greatly in colouring.

Misses HOPKINS, Shepperton-on-Thames, on one of the side stands in the great hall, arranged a pleasing rock and water-garden exhibit.

Messrs. HEATH & SONS, Cheltenham, had a capital rock-garden group, with waterpools here and there.

Mr. CLARENCE ELLIOTT, Stevenage, arranged a rock-garden exhibit on staging in a more central position, and employed many excellent plants, including *Campanula pusilla* Miss Willmott, of pale blue colour, and the rare and distinct sub-shrubby *Sedum Liebmannianum*.

A magnificent display of *Larkspurs* (*Delphiniums*) was arranged by Mr. AMOS PERRY, Enfield, on either side of the great hall, a great blue cloud of flowers, at once startling in its brilliancy and effective in the extreme. A year ago Mr. PERRY had his "Blue tent" at Holland Park, but, under canvas, the brilliant picture was lost; whereas now it was superb and imposing a couple of hundred yards away.

Mr. H. HEMSLEY, Crawley, had many interesting plants on rockwork near the entrance to the building, of which *Artemisia frigida*, *Aethionema* species, with pink flowers, *Primula Litchioniana*, *Geum rhaticum*, and *Erythroxia diffusa* are a few of the more interesting species.

Mr. G. REUTHE, Keston, Kent, showed a delightful exhibit of Alpine plants and shrubs. *Erica cinerea*, *Allium narcissiflorum*, *Campanula Raddeana*, *Anticodonium venustum* with Lilies, *Desfontainia spinosa* and *Mitraria coccinea* being noted in the group. Most interesting of all perhaps was the yellow-flowered, red-stemmed *Saxifraga Brunonia*, while *Primula suffruticosa* was among the most rare.

Messrs. BARR & SONS, Covent Garden, had an extensive grouping of *Delphiniums*, *Salvias*, and *Campanulas*.

Mr. J. BOX, Lindfield, showed early *Gladioli*, *Larkspurs*, *Eremuri*, *Pentstemons*, *Verbasums*, and *Irises*, all in great variety.

Messrs. GUNN & SONS, Olton, Birmingham, staged one of the best groups of herbaceous Phloxes we have seen. The flowers were most brilliant in effect and admirably displayed, such varieties as May Campbell (pale pink), Meteor (salmon), Tapis Blanc, Iris, and Le Mahdi being remarked in a really splendid collection.

Not one of the largest, but certainly one of the most interesting exhibits in this section was the delightful Alpine group from the CHAVEN NURSERY, Clapham, Lancaster, a little moraine garden containing *Campanula cuspitosa pallida*, *C. Zeyssii*, *C. speciosa*, *Silene pusilla*, a veritable miniature of *S. alpestris*, *Saxifraga aizoides*

aurantiaca, *Hypericum olympicum*, and many others.

A collection of *Delphiniums*, staged by Messrs. KELWAY & SON, Langport, was in every way admirable, and occupied two tables in the centre of the hall. The exhibit was one of great merit, and contained such fine varieties as *Beauty of Langport*, *Geneva*, and others.

Messrs. WHITELEGG & PAGE, Chislehurst, had a great bank of hardy flowers in variety.

Mr. HOWARD CRANE, Highgate, N., showed *Violas* and *Violettas* in pans of sand and water; this method of exhibiting them retaining the character as well as the utility of the subject. Such *Violettas* as *Eileen*, *Forget-me-Not*, *Grace*, *Diana*, *Rock Blue*, *Rock Yellow*, and *Miss G. Jekyll* were delightfully pretty.

Messrs. SEAGRAVE & CO., Sheffield, displayed *Violas* and *Pansies* in bunches, but the flowers soon lost their freshness and beauty in the great heat.

Messrs. B. LADHAMS, LTD., Southampton, staged *Pinks*, *Salvias*, *Gaillardias*, *Iris levigata* *Rose Queen*, *Dianthus Marie Parc*, and *D. Napoleon III*.

Messrs. G. & A. CLARK, LTD., Dover, had a most extensive table arrangement of hardy flowers, *Alpines*, and *water Lilies*.

The LOCKSHEATH NURSERIES, LTD., Southampton, showed many hardy cut flowers.

Mr. R. C. NOTCUTT, Woodbridge, arranged hardy flowers with his exhibit of *Roses*.

Messrs. PHILLIPS & TAYLOR, Bracknell; F. SMITH & CO., Woodbridge; and GILBERT & SON, Bourne, Lincs., were also exhibitors of hardy plants or flowers.

AWARDS.

AWARDS OF MERIT.

Dracopis dumortieri *Wawrochii*. An ornamental-foliaged plant, having leaves about 1 foot in length and 2 inches in breadth, of a

of rose. The flowers are produced five or six in a truss. Shown by Mr. W. TRESEDER, Cardiff.

Rose Frances Charlotte Nelson. A cherry rose-coloured Hybrid Tea variety, of good form, with recurving outer petals. The buds are pointed. The plant is said, by the raisers, to be a strong grower. Shown by Messrs. WM. PAUL & SON, Waltham Cross.

Rose Leslie Holland.—A rich crimson Hybrid Tea variety, with a touch of purple on the petals, suggesting a H.P. variety. The flowers are of good substance, and the flower-buds long. The blooms retain their good shape unusually well. Shown by Mr. HUGH DICKSON, Belfast.

Rose Mrs. Chas. E. Allan.—A rich apricot-tinted variety, of good form, with pretty, recurving petals. The blooms do not possess much substance, but the plant is free in flowering and of vigorous habit. Shown by Mr. HUGH DICKSON.



OLYMPIA SHOW.

FIG. 12.—EXHIBIT OF FINE FOLIAGE PLANTS: SHOWN BY MESSRS. JAMES VEITCH AND SONS.

(See p. 16.)

The GUILDFORD HARDY PLANT NURSERY had showy masses of *Primula capitata*, *Neiremburgia rivularis*, *Sidalcea Listeri*, and other hardy plants.

Messrs. WM. WELLS & CO., Merstham, showed *Pentstemons* and *Phloxes*.

Messrs. A. A. WALTERS & SON, Bath, had a charming lot of *Delphiniums*, notably *King of Delphiniums* and *Rev. E. Lascelles*.

Messrs. W. & J. BROWN, Peterborough, had a lovely example of *Ostrowia magnifica* in the midst of a large number of hardy subjects.

Messrs. JACKMAN & SONS, Woking, displayed rich masses of *Astilbes*, *Liliums*, *Gaillardias*, *Iris Kempferi*, and *Larkspurs*.

Messrs. G. GIBSON & CO., Leeming Bar, had a showy and extensive exhibit of hardy flowers, chiefly as cut blooms.

deep-green colour, with a narrow line of white drawn parallel with the margin, about one-quarter of an inch from it, and the lamina being paler within this line. Introduced through the Berlin Botanic Garden, and shown by Messrs. JAS. VEITCH & SONS, Chelsea.

Glaux lasiocaulis "Queen Mary." This pretty variety belongs to the early-flowering section. The flowers are pale salmon, blotched on the lower petals with cream. Shown by Messrs. BARR & SONS for Messrs. SMITH, Caledonia Nursery, Guernsey.

Pelargonium Lord Bute. A seedling *Pelargonium* that attracted attention on account of its deep colouring. It is rather a reversion from the newer "fancies" to the older "decoratives," with smaller flowers than the former and the good constitution of the latter. The colour of the petals is a deep maroon, with a narrow edge

Sweet Pea Lady Knox.—A distinct and pleasing variety that Messrs. DOBBIE & CO. have shown consistently well lately. The ground colour is cream, edged lightly with buff, which, with age, flushes into the centre. Several of the sprays had four flowers on each. Shown by Messrs. DOBBIE & CO., Edinburgh.

ORCHID COMMITTEE.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), de B. Crawshay, H. J. Chapman, J. E. Shill, H. Ballantine, W. Thompson, A. Dye, H. G. Alexander, F. Sander, A. Dye, Gurney Wilson, J. Charlesworth, F. M. Ogilvie, W. H. White, R. Brooman-White, W. P. Bound, W. H. Hatcher, Stuart Low, A. McBean, R. G. Thwaites, C. J. Lucas, W. Bolton, H. Little, W. Cobb, G. W. Moore, and E. Ashworth.

The display of Orchids was not quite so prominent as the displays which have been seen at the Temple and at Holland Park. Nevertheless, there was a good show at the end of the central walk, very fine groups being staged by Sir JEREMIAH COLMAN, Bart., Messrs. CHARLES WORTH & Co., Messrs. MANSELL & HATCHER, Messrs. STUART LOW, Mr. E. V. Low, and Messrs. SANDER & SONS.

Sir JEREMIAH COLMAN, Bart., Catton Park (gr. Mr. Collier), staged a most interesting group, in which, were the curious and beautiful C

group, the elevated centre and two raised groups at the end being composed of *Phalenopsis Rimestadiana*, about two dozen plants being used in each set. The sides were of finely-flowered *Laelio-Cattleyas*, *Odontoglossums*, brilliant *Disa grandiflora*, yellow *Oncidium macranthum*, *O. crispum*, &c. Some of the finest noted were *Cattleya Warscewiczii majestica*, the white *C. Mossiae Wageri*, *C. M. Silver Queen*, *C. M. Reinckiana*; several dark-coloured *Anguloa Ruckeri*, and a distinct *C. Mendelii*, white with a mauve front to the lip. The large, white

and other kinds. The *Odontoglossums* were specially fine, among them being the rare white *O. Uro-Skinneri alba*, *O. Clytie*, *O. amabile*, and *O. Queen Alexandra*. Among white *Cattleyas* were good *C. Gaskelliana alba*, *C. Mossiae Wageri*, and several other good forms, for one of which *C. Mossiae Queen Mary*—see Awards. Of rare species noted were *Coryanthes maculata*, *Cycnoches*, *Bifrenaria inoflora*, *Bulbophyllum biflorum*, a good pot of *Anactochilus setaceus*, *Luisia Amesiana*, and *Dendrobium Sanderianum*. Among hybrids were some very dark forms of *Laelio-Cattleya Martinetii*.

Messrs. STUART LOW & Co., Bush Hill Park, staged a very effective group, in the centre of which were a large number of good specimens of *Renanthera Immschootiana* fronted by elegant plants of the white *Utricularia montana*. *Cattleya Warscewiczii*, *C. Mendelii*, *C. Mossiae*, and white varieties were well displayed, and at the back, yellow *Oncidium*, purple *Odontoglossum Clytie*, a patch of the yellow and red *Laelia cinnabrosa*, whilst in front was an interesting arrangement of *Masdevallias*, with *Ornithocephalus grandiflorus*, the blue *Dendrobium Victoria Regina*, and other *Dendrobiums*, *Ocymeries*, *Pleurothallis*, *Stanhopea tigrina*, *S. devoniensis*, and a very fine and probably new white species of *Aerides*.

Messrs. SANDER & SONS, St. Albans, staged a selection of novelties, one of which secured a First-class Certificate, and three others Awards of Merit (see Awards). Other good things noted were *Odontioda Zephyr* var. *Brilliant*, of a bright scarlet colour; *O. ornata* *Princess Mary*, a pretty white flower, spotted with red, and some showy *Odontoglossums*. We also observed a grand example of *Cattleya Warscewiczii Sanderiana*, with seven flowers on a spike.

H. S. GOODSON, Esq., Fairlawn, Putney, showed the pure white *Cattleya Mossiae Wageri* Goodson's variety, and two plants of the very remarkable *Cattleya Mossiae Mrs. A. Goodson*, with fine flowers, variegated rose and bluish-white.

Mr. HARRY DIXON, Spencer Park Nurseries, Wandsworth Common, staged an effective group of *Cattleya Mossiae*, *C. Mendelii*, good *Odontoglossums*, and *Odontiodas*, *Lycaste Deppei*, *Cœlogyne pandurata*, and others.

Mr. E. V. LOW, Vale Bridge, Haywards Heath, had a select group, which included the rare white and fragrant *Cattleya Eldorado alba*, *C. Mossiae Wageri*, with four flowers, *Bulbophyllum barbierum*, with three spikes, *Laelio-Cattleya* × *Clive*, and other *Laelio-Cattleyas*, *Odontoglossums*, *Cœlogyne pandurata*, *Cattleya Lord Rothschild*, and the very large-flowered *C. Mossiae Imperator*.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed a very fine form of *Laelio-Cattleya Rubens* (*L. pumila praestans* × *C. Hardyana*), with broad, rose-coloured sepals and petals, and intense, velvety-crimson front to the lip.

SAMUEL LARKIN, Esq., The Ridgways, Haslemere (gr. Mr. Hales), showed *Laelio-Cattleya Norba* Larkin's variety, the canary-yellow flowers showing rose markings on the lip.

W. WATERS BUTLER, Esq., Southfield, Edgbaston (gr. Mr. Jones), showed *Laelio-Cattleya Martinetii* Southfield variety, a pretty, light form, much resembling *Laelia tenebrosa* Walton Grange variety.

Mr. G. W. WATERS, Balcombe, staged a selection of *Cattleyas* and *Odontoglossums*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Laelio-Cattleya Sylvia (Awards 2, *Hippolyte Phœbe*), from Messrs. CHARLESWORTH & Co.—A most charming and well-formed flower, of a clear, chrome-yellow, tinged with red, the front of the lip being ruby-crimson, with a margin of pale yellow.

Odontoglossum ardentissimum Queen Mary, from Messrs. SANDER & SONS, St. Albans.—Flowers of large size, clear white, heavily blotched with violet colour, the clear white margin being very characteristic.

AWARDS OF MERIT.

Odontoglossum crinum King George, from Messrs. SANDER & SONS.—A fine hybrid, of a deep claret-red colour, with narrow, white margins to the sepals and petals, and white front to the lip.



OLYMPIA SHOW.

FIG. 13.—*LAELIO-CATTELEYA SYLVIA*: AWARDED A FIRST-CLASS CERTIFICATE.

setum *Colombiana*, a fine yellow flower with a trilobed lip stained with deep crimson; *Bulbophyllum virgescens*, *B. Ericssonii*, *Masdevallia Gargantua* and other singular *Masdevallias*; *Waluwia pulchella*, *Cattleya Harrisoniana alba* and other *Cattleyas*, *Odontoglossums*, *Miltonia vexillaria Queen Alexandra*, *Miltonia Bradshawie*, and other hybrids, *Odontioda Bradshawie*, and other hybrids.

Messrs. CHARLESWORTH & Co., Haywards Heath, had a very extensive and well arranged

Miltonia vexillaria Queen Alexandra bore four fine spikes. *Odontoglossum perculum King George V.* had white flowers heavily blotched with violet; *Angraecum Eichlerianum*, *Oncidium Lanceanum*, *Odontoglossum Williamsianum*, and other showy things were also well displayed.

Messrs. MANSELL & HATCHER, RAINHAM, Yorks., had a splendid group, most tastefully arranged, the white *Phalenopsis* arching over the showy-coloured *Laelio-Cattleyas*, *Cattleyas*,

South Africa.
Hunt, Adm. C. M. G., Secretary for External Affairs,
Commonwealth of Australia.
Hyndman-Jones, Sir Wm. H., Chief Justice of the
Straits Settlements.
Child, Alfred, New Zealand.
King, Col. Wallis, M.V.O., of the Naval and Military
Fournment.
Kirkpatrick, The Hon. A. A., Agent-General for S.
Australia.
Lawrence, Sir Trevor, Bart., K.C.V.O.
Leete, William Chambers, Town Clerk of the Boro' of
Leeds, Wm.

Hawker, Sir John Laing, Vice-President of the Royal Hort. Soc.
 Lucas, Sir Charles, K.C.M.G., Secretary for the Commonwealth of the Commonwealth of the Commonwealth.
 McCarthy, R. H., late Govt. Director, Trinidad Dock Co.
 Marshall, W. V.M.H.
 May, H. B., V.M.H.
 Mitchell, The Hon. Sir Lewis, Cape Town.
 Mills, Sir James, K.C.M.G., New Zealand.
 Moore, The Hon. Sir Newton, Agent-General for Western Australia.
 Morris, Sir Daniel, K.C.M.G.
 Neustein, Capt. F. W., New South Wales.
 Payne, E. H.
 Pearson, R. Hooper.
 Peck, The Rt. Rev. the Bishop of Western Australia.
 Prain, Lt.-Col. W. D., F.R.S., Director of the Royal Botanic Gardens, London.
 Rayner, Sir Thos. Crossley, Attorney-General, British Guiana.
 Reader, Frank.
 Renard, Dr. A. B., Natural History Museum.
 Robinson, Major Sir Thomas B., Agent-General for Queensland.
 Rollit, Sir Albert, D.L.
 Russell, The Hon. A. K.S.G.P., New Zealand.
 Rutherford, R., Vice-Chairman of the West India Committee.
 Senn, C. Herman, Hon. Sec., Cookery and Food Assoc. Scotland.
 Shoolbridge, R. W. C., Tasmania.
 Shoobridge, F. A., B.A., F.L.S., West Indies.
 Symon, Sir Josiah, Senator, South Australia.
 Turner, The Hon. J. H., Agent-General for British Columbia.
 Twining, Rev. W. H. G., St. Stephens, Westminster.
 Veitch, H. J., V.M.H.
 Wardell, Major B. J., Victoria.
 Wickham, H. A., Papua.
 Wilkinson, Capt. H. F.
 Wilks, The Rev. W., Secretary, Royal Hort. Soc.
 Wilson, The Hon. A. K.S.G.P., Member of the Legislative Council, Cape Colony.
 Wittemon, Hon. Sir Edward, of Western Australia.
 Wright, S. T.
 Young, The Hon. Sir James, Member of the Executive Council, Bahamas.

FESTIVAL OF EMPIRE ROSE SHOW.

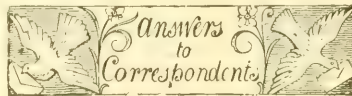
JUNE 29.—The Rose Show organised by the horticultural department of the Festival of Empire was held on the above date at the Crystal Palace under the management of Mr. T. Geoffrey W. Henslow. The schedule in the main followed that of the National Rose Society, whose rules for judging were also adopted, but a great pre-eminence was given to exhibition Roses on boards, which formed, perhaps, the chief feature of the show, only two classes being arranged for nurserymen's collections of decorative Roses and none for representative groups. No money prizes were awarded, silver cups or gold medals in each case constituting the 1st, with silver and bronze medals for 2nd and 3rd prizes. Cups were presented by the National Rose Society, *The Daily Telegraph*, The Festival of Empire, Duke of Fife, Earl of Plymouth, Lord Northcote, Col. Hutchinson, Sir Joseph Lyons, &c.

On the whole the classes were well contested. Five nurserymen showed in the class for 48 blooms and 10 in that for 36 blooms. The entries were still more satisfactory in the classes for the small amateurs (growing fewer than 500 plants), in some of which as many as 20 exhibits were staged. The quality of the blooms was a good average—the season had scarcely promised better—with a few blooms of exceptionally fine colour.

The Gold Medal offered for the best Rose in the show was awarded to a bloom of Frau Karl Druschki in Messrs. D. Prior & Sons', Colchester, exhibit. The 1st and 2nd prizes in the class for 12 Hybrid Perpetuals were awarded to the variety Mrs. John Laing. Mrs. T. Roosevelt, Lyon Rose and White Killarney (all the new Roses) were the winning Hybrid Teas. White Maman Cochet and Maman Cochet were 1st and 2nd respectively in the class for Teas or Noisettes. Lyon Rose was remarkable in taking a place on almost every board in every class for which it was eligible. The Silver Cup offered for the best 12 blooms of any new Rose was won by Messrs. HUGH DICKSON & SONS, Belfast, with the variety Leslie Holland. Messrs. B. R. CANT & SONS, Colchester, were awarded the Gold Medal offered for 12 new Roses not offered for sale before 1903, with the varieties Claudius, Comtesse I. Hardege, Dr. O'D. Browne, Elizabeth, Ethel Malcolm, John Cuff, J. L. Mock, La Galie-rine, Lyon Rose, Molly S. Crawford, Rhea Reid and White Killarney. Lady Hillington and Lady Pirrie were also well shown in this class.

The winning seedling Roses were all Irish-raised. The prizes were awarded as follows:—(H.T.) 1st, Queen Mary, a very bright pink Rose with base of yellow and orange, the colours of

Juliet with the light substance and freedom of the Hybrid Tea Rose; 2nd, King George V., a rich crimson variety of fine form and scent; 3rd, The Hon. Mrs. George Lawson Johnston, small, buff-orange flowers of fine form: a neat and pretty Rose; 4th, Firebrand, a large orange-coloured single Rose with beautiful buds. Messrs. A. DICKSON & SONS, Newtownards, were the winners of the 1st and 4th and Messrs. H. DICKSON, Belfast, of the 2nd and 3rd prizes. The Gold Medal in the amateurs' class, offered for the six sweetest-scented Roses, was awarded to the Rev. J. H. PEMBERTON, Havering-atte-Bower, for Mme. A. Carrière, Moschata, René André, Seagull, York and Lancaster and Zéphirine Drouhin.



* * * Owing to unusual pressure on our space, reports of several exhibitions are held over until next week.

A GARDENER'S NOTICE: *Ashweels*. It is customary for an under-gardener to give and receive a week's notice to terminate an engagement. In the case of a head gardener a month's notice is usual.

CROWS VITELLIFERA: *J. B.* We have examined the plants and find no trace of disease. We are unable to explain the cause of their failure as we have no knowledge of the treatment they have received.

"CORONATION" FLOWER-BEE: *T. W.* The plants you name are not the best for the purpose. Use the *Echeverias* for an edging, raised 6 inches above the ground level, and planting them in double or triple rows. Next to the *Echeverias* plant a 3 to 4-inch line of *Pyrethrum* and a groundwork of the *Saxifrage*. You might form a crown in the centre worked out in *Pyrethrum* and *Antennaria*. An Old English "G" might be formed at the right-side end, and "M" at the left-side end, in *Ajuga*, with the narrowest possible edge of *Pyrethrum*. On the right side, between the monogram and crown, a single heraldic rose in *Antennaria*; on the corresponding left side, a Thistle, in *Antennaria* and *Ajuga*, with a few circles composed of *Antennaria*, and a Shamrock in green worked in each. If space permits, a neat scroll of *Pyrethrum* might be worked in on each side.

FLOWERS FOR PLANTING IN BOWLS: *Bozoor*. Those you name are suitable, but we mention a few others. Lily of the Valley from retarded crowns, started five or six weeks before they are required to flower; Lobelia Katherine Mallard, Marguerites Queen Alexandra and Boule de Neige, Ivy-leaf Pelargoniums Mme. Crousse, Galilee, and Souvenir de C. Turner; double and single Begonias, Carnations Britannia and Mrs. H. Burnett, Campanula isophylla alba, and China Asters. Foliage plants, including Ferns in variety, Begonia Rex, and Aspidistras may also be employed.

HOLLYHOCK DISEASED: *W. A. C.* The Hollyhock is affected with "Hollyhock" rust (*Puccinia malvacarum*), which is very abundant on the specimens. The best method of checking the spread of the disease is to spray the plants with liver of sulphur—1 ounce in 3 gallons of water.

HYDRANGEA LEAVES LOSING THEIR GREEN COLOUR: *H. H.* Water the foliage of the Hydrangeas with a one per cent. solution of sulphate of iron at intervals of three days.

NAMES OF PLANTS: *G. W. H.* *Phlox* frutescens—*H. A. S.* *Dianthus chinensis* var.—*H. MacDonald*. *Festuca ovina*—*J. Mason*. *Diplotax muralis*, *Salvia verticillata* (Broad-leaf), *S. nemorosa*—*O. N.* *Cornus capitata*—*W. J. C.* *Iris xiphioides* (English Iris)—*W. E. Th.* *Cotyledon chrysanthus*, a native of Asia Minor.

ROSE COMMANDANT FELIX FAURE: *W. R.* No disease is present in the plants; the brown spots on the leaves are caused by unfavourable weather.

ROSE LEAVES: *W. A. G.* The injury to the Rose leaves is caused by the Rose slugworm. Spray the plants with a solution of hellebore. The surface soil should be removed during the winter, burying it deeply in some out-of-the-way part of the garden, and replacing it by fresh mould.

ROSE W. A. RICHARDSON: *W. A. H.* We are unable to account for the failure of your Roses. There is no disease present in the specimens, therefore some wrong cultural treatment or unsuitable soil may be responsible.

RUST ON BEGONIAS: *Tuberous*. We cannot determine what is causing the rust on your Begonias, unless you submit examples of the affected leaves for examination, but the injury is most frequently caused by mites, and these pests may be destroyed by dipping the plants in Tobacco water.

SOLANUM: *F. W.* *Solanum* appears to be first mentioned by Pliny, who thought it to be the same as the Greek *Strychnos*. The word is connected with the Latin verb *solor*, to "comfort," hence our word "solace," from *solatio*, also of inanimate things to "relieve" or "assuage." This may suggest (but Pliny offers no hint, for he gives quite other uses) the origin of the word; as the Mandrake, of the same family, was used as an anæsthetic for surgical operations by the Roman surgeons. *Strychnos*, he says, had "black berries," so that might have been *Solanum nigrum*. There does not seem to be any certainty about the etymology of the word.

SOLANUM LEAVES: *W. V.* The scurfiness on the leaves of your plants of *Solanum* is caused by an excess of moisture in the air. Ventilation should be freely afforded the plants early in the day.

SOUTH AFRICAN PAPER: *K. & L. Boskoop*. *South African Gardening and Agriculture* is published by the Horticultural Publishing Company, Box 3958, Johannesburg, South Africa, price 6d.

STOCKS DISEASED: *F. F.* The plants are affected with mildew. Spray the plants at intervals of three days with a solution of liver of sulphur, at a strength of 1 ounce in 3 gallons of water.

TOMATOS DISEASED: *A. S. R. & Co.*—See reply to *Old Subscriber* in the issue for June 24, p. 420.

TOMATO FAILURE: *W. H. H.* The Tomato plants have been injured by the fungus causing "sleepy disease." Water them with sulphate of potash, at a strength of 1 ounce in each gallon of water.

TOMATO "MILDEW": *Correspondent*. The Tomatos are affected with Tomato-leaf rust. Spray the plants every third day with a solution of liver of sulphur—1 ounce in 2 gallons of water.

TULIPS DISEASED: *Entre Nous*. From your description, we assume that the Tulips are affected with Botrytis. Before the bulbs are stored, they should be dusted over with flowers of sulphur. Vaporite may be employed in the soil with good results.

WOODLOUSE: *A. W.* This pest is usually more abundant in the warmer glasshouses. Set traps for them by hollowing out pieces of Potato, Turnip, or other vegetable, and place the pieces, hollow side downwards, in the haunts of the pest. On examining the baits each morning, they will usually be found to contain woodlice, which should be destroyed, and the traps replaced. Another method is to poison the baits by soaking them in Paris Green or white arsenic. Steiner's "Vermine Paste" may also be recommended. The paste is mixed with Barley meal or middlings, putting it on pieces of glass, wood, or tin, then placing in the haunts of the woodlice.

Communications Received.—H. T. (thanks, photographs under consideration) C. & Sons, W. R. P., Fiskin, A. P. S., H. D. W. F., J. K. Cheshire. Regular Reader—W. D. A. S. C. H. W. W. C. W., Edmonton. Subscriber—A. H. W. R. Toms, Fernie. W. H. W. P. L. B. T. E. J. C. H. S. T. B. D. C. H. H. Constant Reader—F. B. I. S. E. AIRX—B. A. C., Orleans. G. A. L. S. A. W. H. P. G. W. C. T. D.—W. C. H. L. F. W. S. J. J. D. G. T. W., St. Neots.

Gardeners' Chronicle

No. 1,281.—SATURDAY, July 15, 1911.

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INJURIOUS INSECTS AND PLANT DISEASES.

LEGISLATION IN CANADA.

THE Department of Agriculture of Canada is empowered by the Destructive Insect and Pest Act of 1910 to take such action as may be deemed necessary to prevent the introduction or spreading of injurious insects, pests, and plant diseases. All plants, with the exception of certain classes, such as greenhouse-grown plants, herbaceous perennials, and bulbs may be imported at certain seasons of the year only and through certain ports as specified in the Regulations. The Department of Agriculture has power to inspect plants liable to be infested with certain insects and plant diseases, to destroy the same if necessary or to prohibit their importation into Canada.

At six of the ports of entry (see Section 3 of the Regulations) fumigation stations are established where plants from countries and states infested or liable to be infested with the San Jose Scale are fumigated with hydrocyanic acid gas by special officers in charge.

Plants from Europe, Japan and the States of Vermont, Maine, Massachusetts, New Hampshire, Connecticut, and Rhode Island, six of the United States of America, are inspected by officers of the Department for the Brown-tail moth and Gipsy moth. In some cases this inspection is made at the port of entry, in other cases at the destination of the stock. In the latter case the plants may not be unpacked except in the presence of an inspector.

It is necessary for all persons and transportation companies importing or bringing plants into Canada to notify the Dominion Entomologist, Ottawa, of the fact, and, through the co-operation of the Department of Customs, the Customs officers at the ports of entry also send advices of the arrival of shipments of plants at the various ports through which plants may enter.

In addition to the inspection and fumigation of imported plants, field officers are employed in inspecting orchards and in carrying out eradication measures against the Brown-tail moth in those regions in Nova Scotia and New Brunswick infested with the insect. This eradication work is carried out in co-operation with the respective provincial governments. The fumigation and inspection of imported plants and infested regions and all measures for eradication work are carried out under the direction of the Dominion Entomologist.

The Minister of Agriculture has power to prohibit the importation of plants from any given region should it be deemed necessary, owing to the presence of serious insect pests or diseases in such a region. This has been done in the case of Potatoes from Newfoundland and the neighbouring islands, to prevent the introduction of Potato canker (*Chrysophlyctis endobiotica*).

The Destructive Insect and Pest Act, and the Regulations issued under the Act are given below.

In addition to the legislation of the Federal Government, certain of the provincial governments have instituted legislative measures in reference to plant diseases and pests.

The province of British Columbia inspects all plants and fruits entering the province, and any plant or fruit found to be infested with insect pests is either subjected to treatment or destroyed.

The province of Ontario has legislation chiefly relating to the inspection of nurseries and nursery plants.

The province of Nova Scotia has recently enacted legislation under which the Department of Agriculture for the province will have power to inspect orchards and take such steps as are necessary for the eradication or control of the more serious insect pests and plant diseases.

THE DESTRUCTIVE INSECT AND PEST ACT.

An Act to prevent the introduction or spreading of insects, pests and diseases destructive to vegetation.

(9-10 Edward VII., Chap. 31.)

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. This Act may be cited as the Destructive Insect and Pest Act.

2. In this Act, unless the context otherwise requires, "the Minister" means "the Minister of Agriculture."

3. The Governor in Council may make such regulations as are deemed expedient to prevent the introduction or admission into Canada, or the spreading therein, of

any insect, pest, or disease destructive to vegetation.

4. Such regulations may provide:—

(a) for the prohibition generally, or from any particular country or place, of the introduction or admission into Canada of any vegetable or other matter likely to introduce any such insect, pest, or disease;

(b) the terms or conditions upon, and the places at which any such vegetable or other matter may be introduced or admitted into Canada;

(c) for the treatment and manner of treatment to be given to any vegetation, vegetable matter or premises in order to prevent the spreading of any such insect, pest or disease, and may prescribe whether such treatment shall be given by the owner or by a person appointed for such purpose;

(d) for the destruction of any crop, tree, bush or other vegetation or vegetable matter or containers thereof infested or suspected to be infested with any such insect, pest or disease;

(e) for the granting of compensation for any such crop, tree, bush or other vegetation or containers thereof so destroyed, such compensation not to exceed two thirds of the value of the matter destroyed and to be granted only by the Governor in Council upon the recommendation of the Minister;

(f) for the prohibition of the sale of any vegetable matter infested with any such insect, pest or disease;

(g) that the occupier of the premises on which is discovered any such insect, pest or disease shall forthwith notify the Minister and shall also send specimens of such insect, pest or disease;

(h) for the confiscation of any vegetable matter and the container thereof, if any, in respect of which a breach of this Act, or any regulation made thereunder is committed and generally for any other purpose which may be deemed expedient for carrying out this Act, whether such other regulations are of the kind enumerated in this section or not.

5. The Minister may appoint inspectors and other officers for carrying out this Act and the Regulations made thereunder. Such appointments, if not confirmed by the Governor in Council within 30 days of the date thereof, shall lapse and cease to be valid.

6. Any inspector or other officer so appointed may enter any place or premises in which he has reason to believe there exists any such insect, pest or disease, and may take specimens thereof and also of any vegetable matter infested or suspected of being infested therewith.

7. The Minister, upon the report of any inspector setting forth a reasonable belief of the existence of any such insect, pest or disease in any area defined in such report, may prohibit the removal from such area or the movement therein of any vegetation, vegetable or other matter which, in his opinion, is likely to result in the spread of such insect, pest or disease.

8. Every person who contravenes any provision of this Act, or any regulation made thereunder, shall be liable, upon summary conviction, to a fine not exceeding 100 dollars, or to imprisonment for a term not exceeding six months, or to both fine and imprisonment. Any vegetable or other matter imported or brought into Canada contrary to this Act, or to any regulation made thereunder, shall be forfeited to the Crown.

NEW OR NOTEWORTHY PLANTS.

MECONOPSIS INTEGRIFOLIA \times M. GRANDIS.

This new hybrid (see fig. 14) has flowered in Mr. Beamish's garden at Ashbourne, Glenties, Co. Cork.



FIG. 14. HYBRID MECONOPSIS FROM A CROSS BETWEEN M. INTEGRIFOLIA AND M. GRANDIS.

9. Every order in council and regulation made under this Act shall be published in *The Canada Gazette*, and shall be laid, by the Minister, before Parliament within 15 days after the commencement of the then next session.

10. The San Jose Scale Act is repealed.
C. Gordon Hewitt, D.Sc., Dominion Entomologist, Ottawa.

(To be continued.)

In habit the plant resembles *M. integrifolia*, but it is as vigorous as *M. grandis*. The flowers show certain characteristics of both parents. The leaf is more after *M. integrifolia*, but is somewhat shorter and broader, and is covered with a buff tomentum, such as is seen on *M. Wallichii*.

The flowers are of a metallic-like, citron yellow, showing a reflection of the purple which backs the eight petals.

The stamens are arranged densely like those of *Magnolia Watsonii*, and their colour is a most exquisite shade of bronze-yellow. The beauty of the stamens alone will assure a welcome for this hybrid.

I believe that this is the first cross of *M. integrifolia* and *M. grandis* to be recorded, and it is encouraging because it shows the possibility of getting a beautiful hybrid race of *Meconopsis*.

Mr. Beamish tells me that although a cross between a perennial and a biennial, the hybrid has most fortunately assumed the characteristics of the perennial. The vigour of the plant was greater than any other *Meconopsis* seen in cultivation at Ashbourne, although all were satisfactory. W. H. Paine.

ORCHID NOTES AND GLEANINGS.

CATTLEYA MOSSIE QUEEN OF SHEBA.

A FLOWER from a spike bearing four flowers of this very handsome variety of *Cattleya Mossie* has been sent us by Francis Wellesley, Esq., Westfield, Woking. The variety is one of the best of the white forms of *C. Mossie*, the flowers having snow-white sepals and petals, and a broad white front to the lip, which has purple markings, and an orange-coloured disc. It approaches the forms of *C. Mossie Reineckiana*, but has less colour in the lip.

CATTLEYA MOSSIE DUCHESS OF NORFOLK.

THIS is another choice Orchid flowering for the first time with Francis Wellesley, Esq. (gr. Mr. Hopkins). It has silver-white flowers, of a fine form, slightly tinted with lavender, and orange-coloured disc to the lip, with rose-purple markings at the base. There is a slight freckling of the rose-purple inside the white, crimped

L. D. 211.

THE STRAWBERRY SEASON.

By far the most sensational incident in the past Strawberry season was the report in the papers of June 6 that baskets containing 24 lbs. of French Strawberries had been sold in the open market at the price of 1s. each, or one half-penny per lb. This almost incredible assertion was confirmed by Mr. George Monro, who explained that the low price was due to the bad condition of the fruit, owing to the exceptionally hot weather; but, even so, the figure was surprising enough, for we may be sure that there was little fault to find with the packing, the French growers being far more particular in that important point than home growers. A few years ago even soft fruit would have realised 1s. per lb. in the first week in June; but conditions in the Strawberry business are ever changing, and the high prices of the past are nothing more than a memory to the once fortunate grower. The cultivation of Strawberries for market has increased by leaps and bounds within the past few years, and the supplies from the Continent, which reach the market earlier, have been growing heavier year by year.

Such unremunerative prices as much of the imported fruit has brought this year must soon have an effect upon the foreign producer, and as the tendency of the British Strawberry is to become earlier every year, it is probable that foreign supplies will begin to show a falling-off before many more seasons have gone by. Anyone who cares to turn up the files of the gardening papers of 30 years ago will find that, in those days, the Strawberry season seldom began before the latter end of June, and is not so many years since there was no great quantity of berries in the English market before the middle of that month. For the past two or three seasons, June 10 has been about the average date for the appearance of the home-grown supplies; but this year has beaten all records by four or

five days. On June 6 this year there were hundreds of pounds of outdoor Strawberries in Covent Garden, and a day or two later fruit of surprisingly good quality was being sold in the streets at the low price of 4d. per lb.

The abnormal amount of bright sunshine has been responsible, to some extent, for the earliness of the Strawberry crop this year; but for some time past those who make a speciality of this fruit have been striving to produce earlier-fruiting varieties, and they have succeeded. This is entirely as it should be, for anything that will lengthen the always too short season of the home-grown Strawberry will find favour with the British public. In time, therefore, it is likely that the foreigner will be ousted from the market, for, so soon as the home-grown supplies appear upon the scene, it no longer pays the foreigner to ship his fruit over here. But, with his more favourable climate, the Continental grower can still be ahead of home growers in the cultivation of the earliest varieties for our markets; here, however, he is faced with another difficulty. There is a limit to the desire of the British public, even

per lb., and it is not so very long since that the Southampton growers used to make it a rule to cease sending supplies to the open market when the returns fell short of 1s. for the gallon basket of about 4 lbs. When that happened, they turned to the jam manufacturer, who was not quite so particular as to the quality, grading, and general condition of the berries, and could, therefore, be supplied more profitably at the lower rate.

If, in the face of increased competition, the grower still hopes to make his business pay, he must give more attention to certain points that did not matter so much a few years ago, when the supply was less equal to the demand than it is to-day. The Kentish growers—or, at least, a great number of them—still persist in marketing their fruit in the antiquated peck basket, which has always been too large for the purpose. The Southampton district made its name for Strawberries very largely through the adoption of the gallon handle-basket by the growers, and it is safe to say that the fruit ought never to be packed in anything larger; nor is there any form of package which pro-

point that is likely to stimulate the demand ought to be overlooked. "Firsts" ought always to be "firsts" right through, and not "seconds" after the top layer has been removed. The fault, no doubt, is often with the pickers, but that is simply a question of adequate supervision.

The statistics for the present year's Strawberry crop are not yet to hand, but it is unlikely that there will be any advance on last year's figures when the totals are made up. The crop has been a good one, but a part of it was spoiled by showery weather. With an abnormal amount of sunshine at the beginning, the fruit seemed unable to withstand the change to less favourable conditions; for although there has been less wet weather this season than last, there has been more loss through damping-off in the latter part of the season. This is a point to which, it seems, the Strawberry-raiser might pay further attention, for some varieties are certainly more addicted to mildew than others.

In his endeavour to cultivate the early varieties, the grower should not lose sight of the great value of the later kinds, for the public will continue to buy them over a long period; in fact, so long as the warm weather lasts, the demand for Strawberries will be sustained. This year the early varieties were quickly gone, and the market could have taken a heavy supply of later sorts after the inevitable wet was over. The north-country grower, whose fruits do not ripen till those from the south are almost past, finds that it pays him to send his fruit southwards, and the southern grower should, therefore, find it equally profitable to cultivate a late crop. F. B.



FIG. 17.—*PRIMULA GLUTINOSA* W. AND A. (LEAVES GREEN AND WHITE).—SHOWN BY MISS J. S. VILLER AND SONS.

(Photograph by permission of Messrs. J. S. Viller and Sons.)

with regard to the early Strawberry. Strawberries, as in the case of Cucumbers, are not wanted in any quantity until warm weather arrives. It is seldom that hot weather prevails until the end of May, so that the demand for Strawberries, so far as the multitude is concerned, does not arise till then. Furthermore, the masses appear to be very conservative in the matter of Strawberries. They believe—and they are quite right in their belief—that there is nothing like the home-grown berry. Foreign Strawberries are offered to them at quite reasonable prices, yet they do not want them. If they did, the French fruit, even in a soft condition, would not go a-begging at a halfpenny a pound! At twelve times that figure the French grower would find the business a poor one, for this crop does not pay at so low a price. The nature of the fruit involves too much labour in picking and packing, and too much cost in transit, to enable it to be sold at a cutting price and still leave a profit to the grower. Even the English producer begins to doubt whether it pays him to market his fruit when the price falls below 2d.

damage in transit so effectively. Another equally important point is that of grading the fruit, an operation which many growers still seem to neglect, some flowers, except so far as the top layer of the basket is concerned. Grading, with this exception, is often left entirely to the retailer, and it is not to be supposed that he will be prepared to give so good a price when this labour devolves upon himself. Moreover, the fruit is damaged by the second unnecessary handling. It seems that the average grower cannot be persuaded that the old habit of "topping-up" is a bad one, and tells against him in the long run; nor does he seem capable of learning that to put a lot of unripe berries underneath is a policy that eventually is damaging to his own interests. Good as the demand for Strawberries invariably is, the average customer would be far more ready to buy if he could always be sure that there was no likelihood of being deceived. Let the Strawberry-grower be more discriminating in these matters, and he will find that such attention has much to do in keeping up the prices of his produce, for no

THE PRIMULAS OF THE EUROPEAN ALPS.

(Continued from vol. XLV., p. III.)

SUBSECTION. *Gen. Cyathopogon.* **Notes.** Leaves sticky, narrow, fleshy, glossy, serrate; bracts broad and leafy; flowers blue-violet.

This section contains only two plants, both half-paludose and both difficult. Only one is ever likely to occur even to the energetic wanderer in Europe.

P. glutinosa Wulfen. A species of remarkable loveliness and charm. The leaves are narrowish, oblong-lanceolate, toothed from the middle upwards, dark, glossy-green, and very sticky with glandular exudations. The scape rises well above the leaves, stiffish and upstanding though they are to the height of 3 or 4 inches. The bracts are so broad as almost to be leafy in effect; they tend to be of a purplish-brown, and enclose the whole flower-cluster. The flowers themselves are crowded on very short, numerous pedicels, and, thus crowded in by the bracts, do not stand out as boldly as they should. They are, however, fairly large, wide-open, with the corolla lobes so deeply cleft as to make the blossoms look as if each consisted of ten segments. They are intensely fragrant, and, in colour, of a no less intense violet-blue, quite startling in the pure splendour of its tone. With the exception of *P. hibernica*, *P. glutinosa* is the only damp-loving species of the Central European Alps.

P. glutinosa ranges from the Western Rhetians through all the Austrian Alps, restricted always to damp, peaty places at great elevations, on the granitic formations only. On smooth, grassy little lawns, just free from snow, beside the Alpine rivulets, high up, the Blauer Speik may most hopefully be looked for (Helligenblut! Stelvio!) It is a local, perhaps, rather than a really rare plant; but rarity and remarkable beauty combined have given it, in Austrian eyes, a glamour equal to that so ridiculously woven round the flannel-flower in more conventionalised regions. In cultivation *P. glutinosa* is, I fear, certainly difficult; or rather, perhaps, though patient of culture and specially patient of pot-culture, it is very shy of blossom in England. In point of fact, I believe that, like the Soldanellas,

it requires an atmosphere heavy-laden with moisture during the growing period, if it is to develop its flowering force to perfection. It should be treated (as its habit of dying completely down in winter suggests) as a bog-plant, and will be greatly helped—as will *P. farinosa*—if grown among some fine perennial grass, such as *Festuca ovina tenuifolia*.

P. deorum (Velenovsky).—A stout, handsome, rhizomatous species, first described in 1890. Leaves rather stiff and leathery, quite entire, pointed, margined with membrane, set with sessile glands, 3 or 4 inches long, and about half an inch wide. The viscid scape rises to 5 or 8 inches, and carries a unilateral, half-nodding umbel of purple-violet flowers, which are not quite large enough for the size of the plant.

P. deorum loves the same damp lawns near melting snow that are preferred by *P. glutinosa*, but is found only in Bulgaria, on the Rilo Range. In cultivation I fancy that it is captious; a large number of plants that I once imported died some years since, leaving only the memory of a beauty less brilliant than I had expected, and of a root-stock that had a curious tendency to dive into the earth at right-angles to its previous course. *Reginald Farrer.*

(To be continued.)

TREES AND SHRUBS.

THE CATALPAS.*

THE Western, or, as it is sometimes called, the Hardy Catalpa, *Catalpa speciosa*, is in flower here (Arnold Arboretum, U.S.A., June 20). The true characters of this tree were overlooked by botanists until about 30 years ago when the remarkable durability of its wood first called much attention to it. It is a native of the valley of the Mississippi, where, on the rich, moist, and often inundated bottom-lands of streams, it sometimes attains the height of 100 feet. It differs from the other American species, *Catalpa bignonioides*, which will not be in flower for two or three weeks, by the longer points of the leaves, by the larger flowers only slightly spotted on the inner side of the corolla, and borne in short, open few-flowered clusters, and by the stouter pods. It is a much harder tree than the more southern species, and has a more erect habit, and it grows more rapidly; indeed, it often grows too rapidly, and then sometimes suffers in cold winters from splits in the trunk. At one time much was expected of this tree, and the agricultural and horticultural journals were filled with descriptions of its many virtues. All the Catalpas have only a thin layer of sapwood, and the whole trunk is therefore almost entirely composed of heartwood; this resists decay for a long time, and there are well authenticated records of Catalpa fence-posts having remained in the ground for half a century without deterioration. For the production of fence-posts, telegraph and other poles, no other tree gives a better yield if it is planted in rich soil. Catalpa wood is very soft, and the claims that this tree would supply the railroads with the best possible ties have not been fulfilled, for the wood is too soft to resist the cutting of the rails. If as a timber tree the Western Catalpa is less valuable than was at one time supposed, it is the handsomest of all the Catalpas which have flowered in the United States, and a fast-growing, desirable, ornamental tree. Catalpa ovata (sometimes called *Catalpa Kämpferi*), a native of central and western China, although first brought to this country from Japan where it has been cultivated for more than two centuries, is not yet in flower. This is a small tree, which in July produces in great profusion its small light yellow flowers which are succeeded by slender pods. It is harder than either of the American species, but very inferior to them as an ornamental tree. A hybrid of this tree and one of the American

species, *Catalpa Teasii*, is a valuable ornamental tree. It appeared several years in the nursery of J. C. Teas in Indiana, and is a perfectly hardy and fast-growing tree, with larger leaves than either of its parents, and enormous flower-clusters containing from 200 to 300 flowers. The corolla is slightly tinged with yellow, and is marked by broad purple stripes. This hybrid will not be in flower until next month. *Catalpa Bungei* is established in the Arboretum, where it appears perfectly hardy. This small tree is a native of northern China, where it is often planted in temple gardens, and was introduced by the Arboretum into the United States and Europe a few years ago. It has very dark green leaves, and small yellow flowers in small clusters, and, although it has not yet flowered here or in Europe, it will probably be of slight value as an ornamental tree. There is another plant usually called *Catalpa Bungei*. This is a dwarf, round-headed bush which is often planted in formal gardens, where it is frequently seen grafted on the tall naked stems of one of the tree species. This dwarf, which never flowers, is really a form of *Catalpa bignonioides*, and how it got the name of *Catalpa Bungei* is a mystery which will probably never be cleared up. The right name is *Catalpa bignonioides* var. *nana*, but nurserymen will probably continue to sell it as *Catalpa Bungei*. Two Chinese Catalpas raised from seeds collected by Mr. Wilson in the eastern part of the empire have passed successfully through the winter, but it is too soon to speak of their value. The Catalpas are planted in a large group on the eastern slope of Bussey Hill between the Ashes and the Elms, and above the bank occupied by the collection of Lilacs.

THE FLOWERS OF CHAUCER.

(Continued from page 402.)

GEOFFREY CHAUCER was born in 1310 and he died in 1400. He led a busy life, and was attached to the household of John of Gaunt. He was often abroad, but does not seem to have gone further south than Genoa. His remains were buried in Westminster Abbey.

In the account of his flowers I have used the edition edited by Robert Bell in 1855, for the edition of the English Poets, in eight 12 mo. vols. The references are to the volumes and pages. I do not say that this is the best edition of Chaucer's works, but it is the most convenient for my purpose. I do not enter into the question of the genuineness or otherwise of the poems from which the passages are quoted; it is enough for me to quote them as published in this edition. Still less do I enter into the question how far the poems quoted are Chaucer's original work or borrowed by him or translated. Chaucer did borrow largely, and translated from the French, Italian, and Latin authors; but in so doing he made them all his own, and has given them to English readers of all generations to their great delight.

I will only add that I shall be very glad to hear from any readers of these papers, if they will supply omissions or correct mistakes.

AGNUS CASTUS.

1. Some of agnus castus were also
Chapelets freshe.
The flowre and the leaf, IV. 242.
2. A branch of agnus castus eke bearing
In her hand. *Ibid.*
3. In her honde the branch she beareth this,
That agnus castus men calle properly.
Ibid. 255.

Vitex agnus castus grows as a shrub in South Europe and North Africa. It was grown in England by Gerard, but probably not in Chaucer's day, but he may have seen it when travelling in Italy. It is fully

described by Pliny, who describes its many virtues; being not only celebrated as a promoter of chastity, but especially for its power against poisons of all sorts. It can be grown in Southern England as a hardy shrub, and to many its strong aromatic smell is very pleasant. "The name *Agnus Castus*," says Gerard, "comes by confounding the Greeke name *Agnos* with *Castus*, the Latine interpretation thereof." An old English name for it was *Abraham's Balm*, which has not been explained satisfactorily.

AGRIMONY.

And herbes couthe I telle eek many oon,
As egrimoine, valrian, and lunarie.

Prologue of the Chanounes Yeman, III. 32.

An old Anglicised form of *Eupatorium Agrimonia*, a common British plant, formerly credited with many virtues, but now considered harmless and useless. It seems never to have had any common English name.

ALDER.

Birch, asp, aldir. *Knights Tale, I. 182.*

The Alder when well grown is a great ornament of streams throughout the whole of the northern hemisphere. Its English name, with variants, has been in use since the eighth century, and is now supposed to have no connection with the Latin *Alnus*.

ALEYS.

Notes, aleys, and bolas.

Remount of the Rose, VII. 59.

Aleys is named among the fruits "of which many oon faine is." It is the fruit of the wild service tree, but the word is very rare, and is now obsolete.

ALMOND.

And almandres gret plente.

Remount of the Rose, VII. 58.

Almandre is the old French form of Almond. Its native home is in Western Asia, but it was probably grown in English gardens in Chaucer's time.

APPLES.

1. Hir mouth was sweete as bragat is or meth,
Or hoord of apples, layd in hay or heth.
Milleres Tale, I. 195.
2. Wel bette is roten appul out of hord
Cokes Tale, I. 237.
3. Ne every appel that is fair at ye,
Ne is not good.
Prof. of Chanounes Yeman, III. 37.
4. Upon which rokke growth a tre,
That certeyne yeres beres apples thre.
Chauceres Dreame, VI. 65.

(Then follows a long description of the Apples, in which the word is often used, but in no case necessary for quotation.)

5. As rounde as appille was his face,
Ful rolyd and white in every place.
Romaunt of the Rose, VII. 40.
6. And many homly trees ther were,
That peches, coynes, and apples bere.
Ib. 59.
7. A foolis word is nought to trowe,
Ne worth an appel for to lowe. *Ib. 154.*

In No. 4 "Apple" probably means only fruit, the word being often applied to any fruit. In the other quotations our common Apple is meant.

ASH.

1. So wodly, that lik was he to byholde
The box-tree, or the aschen ded and colde.
The Knights Tale, I. 130.
2. Wilw, elm, plane, asch, box.
Ib. I. 182.
3. The blder eke, and eke the hardy asche.
The Assembly of Foules, IV. 195.

* Arnold Arboretum, Harvard University. *Bulletin of Popular Information*, No. 8.

4. Maples, ashe, oke.

Romaunt of the Rose, VII. 59.

5. Ashe, firre, and oke.

Complaynte of a Lovers Lyfe, VIII. 8.

The Ash, one of the most beautiful of British trees, was far more abundant in Chaucer's time than it is now. In the South of England it is rapidly giving place to the Elm. Quotation 4 is from a list of trees given by Ovid, and afterwards copied by Spenser.

ASPEN.

1. Ook, fyr, birch, asp, aldir.

The Knyghtes Tale, I. 182.

2. His herte was so wood.

That lyk an aspen leef he quok for ire.

The Somynours Prologe, II. 102.

3. The aspe for shafes plaine.

The Assembly of Foules, IV. 195.

4. Right as an aspen leef schen can to quake.

Troylus and Cryseyde, V. 157.

5. Maples, ashe, oke, aspe.

Romaunt of the Rose, VII. 59.

6. And quok as dooth the leefe of aspe greno.

Legende of Goodly Women, VIII. 125.

The Aspen has been from very early times the proverbial example of restlessness. Pliny's "*Populus foliis ludentibus*" is probably the Aspen.

BALM.

1. As men a pette ful of lawme helde

Amonge a basket ful of balmes.

House of Fame, VI. 238.

2. The dewe also lyke sylken on shynesse

Upon the leues, as any baume swete.

Complaynte of a Lovers Lyfe, VIII. 8.

Balm in its present use is confined to the flowers and leaves of *Melissa officinalis*; but in Chaucer's time it seems to have been used for any sweet-scented preparation from the dried leaves, like our pot pourri. H. N. Ellacombe, *Boston Vicarage, Bristol.*

(To be continued.)

NOTICES OF BOOKS.

SILVA OF CALIFORNIA.*

BOTANICAL knowledge of the Californian forests begins with the visits of Malaspina and the Vancouver expeditions, the first scientific voyages, save the La Perouse expedition, to touch Californian shores. The botanists attached to these expeditions made known to the European world the existence of *Sequoia sempervirens*, *Quercus lobata*, *Q. agrifolia*, *Arbutus Menziesii*, and several other trees. Since that period, 120 years have gone by, but, on account of the peculiar topography and extent of the State, and the restricted or local range of many species of its trees, botanical discovery has proceeded slowly. The author has given us in the present volume the result of field studies in nearly every part of California during the last 19 years. He has endeavoured to bring together the dendrological characteristics of the various species, their habits, form, seed reproduction, longevity, and relation to drought periods. Facts have also been gathered regarding nanism and spontaneous hybrids, and attention has been paid to the behaviour of trees attacked or mutilated by fire, animals, or man.

The author considers that there are five forest provinces in California: 1, Sacramento and San Joaquin Valleys; 2, South Coast Ranges; 3, North Coast Ranges; 4, Sierra Nevada; 5, Southern California. Extensive treeless tracts are the most characteristic features of the first of these, the wooded areas being thin and limited in extent.

* *The Silva of California*, by Willis Linn Jepson. *Memoirs of the University of California*, Vol. II., 4to., pp. 283, plates, 65, maps 3. (Berkeley: University Press.)

The South Coast Ranges have an average height of 2,000 to 5,000 ft. The Santa Cruz mountains and Santa Lucia mountains, facing the ocean, are forested with Redwood (*Sequoia sempervirens*), Douglas Firs, Tan Oak, and Madrona. A sketch map is given of the region about Monterey, showing the restricted range of four Conifers. The Monterey Pine (*Pinus radiata* Don), the Bishop Pine (*P. muricata* Don), the Monterey Cypress (*Cupressus macrocarpa* Hartw.), and the Gower Cypress (*C. Goveniana* Murr.).

The most marked forestal feature of the North Coast Range is the Redwood belt 300 miles in length. The Sierra Nevada rise from the plains of the Great Valley to heights ranging from 7,000 to 14,500 feet. The western slope is heavily forested with a great variety of Coniferous species. The Sierra Nevada forms the

predominance of Coniferous vegetation is most remarkable. Any explanation of the paucity of broad-leaved trees at the present time bristles with difficulties, as, down to the beginning of the glacial period, the remains of many are shown to have existed in the auriferous gravels of the West. Dr. Harsberger (*Phytogeographic Survey of N. America*, p. 261) states much may be attributed to glaciation, something to the tremendous outpourings of lava, much to the narrowness of the forest belt, to the want of summer rain, and to the most unequal and precarious distribution of the rainfall in winter.

In 1909, Dr. Jepson published his *Trees of California*. This work is a much smaller volume than the present one, and was primarily intended for use in the field, while the present large and somewhat bulky quarto, giving more



FIG. 16.—LÆLIO-CATTELEYA MARTINETH "KING GEORGE": COLOUR OF FLOWERS,

BREDED ROSE WITH CLARET-PURPLE LIP.

Exhibited by Messrs. Charlesworth & Co. at the Olympia Show (Award of Merit).

most extensive and most important forest region of the State. It includes 52 species.

Southern California possesses 57 species—a large number for so arid a region.

The number of species in California which may be called trees is 92, and 49 of these may be considered typically Californian.

The forests of California and those of the Eastern United States offer very striking contrasts. In California the Coniferae are so abundant, both in species and individuals, that the forests are exclusively or mainly composed of cone-bearing species. The most typically Californian broad-leaved trees are the Live Oaks (*Quercus agrifolia* and *Q. wislizenii*), Valley Oak (*Q. lobata*), Tan Oak (*Panania densiflora*), Californian Laurel (*Umbellularia californica*), and Madrona (*Arbutus Menziesii*). There are no Hickories, no Elms, no Beeches, no true Chestnuts, and but one Walnut. In fact, the

elaborate details with regard to the botanical aspect of the subject, seems primarily intended for use in the study or the herbarium. There are 85 plates, reproduced from photographs and line drawings which add greatly to the usefulness of the work; also three maps, the first showing the distribution of the northern groves of *Sequoia gigantea*, the second the distribution of the southern groves, and the third a map of California, designed to indicate the mountain chains, valleys, and river systems of most importance in relation to plant distribution.

As we have pointed out on a previous occasion, the author has a tendency to take an aggregate rather than a segregate view of species; but the present work shows evidence of a great many years of careful study and research, and it can be recommended as a trustworthy guide to the trees of California. E. G. B.

THE ROSARY.

ROSE WICHIMOSS.

MESSRS. BARBIER & Co., of Orléans, have succeeded in obtaining an interesting cross between *R. Wichuraiana* (the seed parent) and the Moss Rose *Salet*. The stalks are thickly covered with straight, reddish prickles, of unequal length, some almost as fine as hairs (setae), and the receptacle at the base of the flower and the sepals are thickly covered with the moss-like appendages well known in the race of Moss Roses. The pink buds look very pretty peeping through this moss covering.

The raisers state that the plant is a very strong grower, making shoots from 5 to 8 feet in length. The flowers are semi-double, 2 to 3 inches across, rosy-white, tinted carmine rose underneath (i.e., on the reverse of the petals),

petals. The former class of hybrids produced plants that could be grown into pillars, but they were not climbers. The Rose before us may therefore be considered the first climbing Moss. Of late years the Mosses have been somewhat neglected in gardens, fashion having run rather in the direction of the climbing Roses, or, of such summer-flowering bush Roses, as the more showy single damask varieties, like *Lady Curzon*. The less gaudy Moss Roses have, for the time, had to give place, and there are probably not more than half-a-dozen Moss Roses now commonly grown. Perhaps a climbing Moss may revive interest in them. *Salet*, the pollen parent of *Wichimoss*, was introduced by Lacharme, as long ago as 1854.

ROSA HEMISPHERICA.

CANON ELLACOMBE's remarks on this Rose (see p. 7) only confirm my conclusions. He is much

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE DESTRUCTION OF CHARLOCK.—I hope readers of the *Gardeners' Chronicle*, especially those who have an interest in a farm as well as the management of a garden, will not take *W. P. R.* (p. 394) seriously when he infers that the destruction of Charlock amongst Corn is not practicable. I fear he is trying to persuade readers that the destruction of Charlock by spraying is impossible. I think, too, that he has only come to such a conclusion by seeing a poor attempt or in conversation with a half-hearted exponent of the practice. I live in a locality where Charlock is a pest on far too many farms, but on this farm I do not tolerate the growth of the plant amongst Corn crops to an injurious extent. I spray Oats and Barley once or twice



FIG. 17. EXHIBIT ARRANGED BY MESSRS. WALLACE AND CO., AT THE OLYMPIA SHOW.

(See p. 16.)

budded in clusters of 6 to 15 flowers, and sweetly scented. The fragrance is preserved even in the dried specimens which have come to this country. The foliage appears to be a bright green, and of fair size and substance, the raisers call it large, and add that the plant is a true climber. From the length of the year's growth stated above, it would appear to be something of the habit of *Gerbe Rose*.

As the first of a new series of *Wichuraiana* hybrids, it is sure to prove interesting, and, seeing that it is to be distributed in the autumn, we may hope soon to see it in this country.

Some years ago the Moss Roses were much in vogue. Mr. Wm. Paul, in *The Rose Garden*, gave a list of over 40 of them, crosses being obtained both with the hybrid *Chinas* and the per-

farther south, where the climate is warmer, hence *R. hemispherica* does not produce the hard green eyes there which are so much against success here. *W. H. Phipps, Before the Garden, Grantham.*

ROSES FOR PERFUME.

JUDGED for sweet perfume only, the following 12 vases of Roses obtained the 1st prize, out of seven competitive collections, at the Rose Show held by the Festival of Empire, at the Crystal Palace on July 29:—*Francois Michelin*, *La France*, *Robin Lyth*, *Ulrich Brunner*, *Léopold Hausbourg*, *Augustine Guinoisseau*, *Zéphirine Drouhin*, *Viscountess Folkestone*, *Earl of Dufferin*, *Marie Payé*, *Prince Arthur*, and *Gladys Harkness*. *W. H. Taylor.*

in a season, and can say that I get rid of the pest without injury to the Corn; in fact, I am certain the application of a spraying solution acts more as a stimulant to the Corn than an injury. I fear, too, *W. P. R.* displays much ignorance of farming when he advises the ploughing of the land, harrowing it, leaving it to fallow, then mowing the weed before the seed matures, ploughing again, and finally leaving it for the frost to destroy any plants that may have escaped previous ploughings and harrowings! I would ask *W. P. R.* when is the crop to be sown, let alone gathered? Under this system I do not wonder that "crops of recent years have not been very remunerative." The right time to spray Charlock amongst Corn is directly it shows the first rough leaf following the seed leaves. This is not always possible, because the weather may be continuously showery or windy and,

therefore, unsuitable for spraying. The rain dilutes the mixture, while rough winds prevent an even application of spray. Even if the Charlock gets into blossom before spraying is done the growth will be so checked as to prevent the formation of seed pods, and that is important, as it is during the time when seed pods are forming and filling that the plant is more exacting in its requirements for the soil than at any other period. By using 21 lb. of sulphate of copper as prepared by Messrs. Strawn for one barrel of water for their Mikado sprayer, $\frac{1}{4}$ acres can be sprayed with satisfactory results. True, the tips of the blades of Corn will be slightly affected, but this is quite immaterial and quickly passes off. *E. Molyneux, Hampshire.*

TROPEOLUM SPECIOSUM.—During the past 60 years I have made many trials to grow this lovely climber, but most of them ended in failure. Yet I feel sure that I have, at last, solved the difficulty attending its cultivation. I have given many plants to friends in the south of England, where it is looked upon as almost impossible to grow, and all who have followed my plan have succeeded. The essential point is to trench the ground deeply before planting, so that the tubers will have an easy rooting medium. After the trenching remove the soil for 8 inches deep, then place a layer of compost consisting of two parts fine loam, one part old farmyard manure, and one part leaf-mould; all the materials should first be passed through a fine riddle and well mixed together. Next lay the tubers on this compost, put another 2 inches deep of the same compost on the tubers, and finish to the level of the ground with ordinary soil. Thus the roots will be 6 inches below the surface. Planting should be done in November, and be followed by a good watering if there is no frost. In the first season it may be desirable to apply water now and again during dry weather. From the very commencement of growth the plants must be given something to cling to, or the stems will get into a tangled mass. This lovely climber is well worth trying to establish. It is like lace amongst flowers, decorating everything it touches with its graceful foliage and brilliant, scarlet blossoms. *Una Scott Elliott, Percot Lodge, Harrow, N.B.*

BULBS DESTROYED BY GRUBS.—The Narcissus fly (*Merodon equestris*) appears to be extending its field of operations. On p. 7 Mr. Adams records it as destroying *Hippeastrum*. During the past winter we received it also in bulbs of *Vallota* and in *Habranthus pratensis* from different sources. The bulbs were destroyed completely in each case, and the grubs proved to be those of *Merodon equestris*. The Rev. W. Wilks informs me that he has found the same grub devouring Lily bulbs. *Frederic J. Chatterton, R.H.S. Garden, Wexley.*

A GOOD EARLY CULINARY PEA.—I am forwarding a few pods of Veitch's Acme Pea. The seeds were sown on March 1, the first pods were gathered on June 6, and we have been picking every day since. *Thomas Wadman, Darton H.D. House Gardens, St. Neots, Hunts.* [Some excellent pods accompanied this communication.—*Eds.*]

RED SPIDER ON VINES (see p. 394).—I do not altogether agree with Mr. Cox in his conclusions when he states that, "given a modern vineery, no one need be troubled with this pest." Modern vineeries, more often than not, have shelves suspended conveniently near the glass for the special accommodation of successive batches of forced Strawberries and other plants, providing, so to speak, the open door for red spider. One may dip the Strawberries in solutions of soft soap and sulphur, syringe them with water daily until the berries commence to colour, and damp the borders and walls as freely as possible. Still red spider is found on the Strawberries. In my experience this is the way red spider gains a footing in even modern vineeries. In regard to the sulphur treatment cited by Mr. Cox, I am afraid the fumes must have been excessively strong to have injured the vine leaves to any degree. I remember working in a vine nursery a few years ago, where sulphuring the pipes was regarded as a certain cure for this insect pest, and I do not think the vines were injured. I

have followed with interest the discussion on the starting of young vines, and I am of the opinion that, provided there is plenty of atmospheric moisture in the vineery, there is no need to syringe the eyes to induce them to break into growth. In the case of early vineeries, I should lower the rods, in order to have the whole length of the rod in nearly as possible an even temperature. *M. Sargent, Rookshaw Gardens, Monmouth.*

MELONS.—May I be allowed to record the fact that I have just cut five Melon fruits from one plant; four of them weighed 4 lbs. 13 ounces each, and the remaining fruit 4 lbs. 8 ounces. The plant, together with others, were planted at the latter end of March in frames, which had contained Violets during the winter. The variety of Melon is that known as Triumph. The fruits were all well netted and they possessed splendid flavour. *E. Hunt, Hackley House Gardens, Pangford, Wincchester.*

THE APPLE CROP.—Your correspondent *A Southern Grower* seems to be in doubt (see p. 1) whether the deficiency in the Apple crop has been caused by the recent drought or by imperfect ripening of the young wood in 1910. As regards the drought, it lasted here from May 15 to June 11 inclusive, yet grass and all established plants and shrubs scarcely suffered at all, and my hay crop, which was cut on June 23 and 24, was an average one. Even if the drought had reached the roots of the trees, the failure of the crop was apparent long before this could have happened. But, if it is admitted that the imperfect ripening of the young wood in 1909 was the cause of the partial failure of the crop in 1910, then the probability is that the same effect has been produced by the same cause this year. The following figures taken from the return of the Royal Observatory, Greenwich, in the monthly weather report of the Meteorological Office show that the climatic conditions in July and August, 1910, were worse in every respect than in 1909. And probably no one will deny that it is in these two months that the shoots are ripened.

		MEAN TEMPERATURE.	NO. DAYS.	RAIN.
1909.	July.	70.1°	78°	3.16 in.
	Aug.	72.9°	86°	1.80 ..
1910.	July.	67.0°	76°	3.52 ..
	Aug.	70.1°	77°	2.15 ..

The Apple blossom was abundant, but I have noticed free blooming, followed by an inferior crop, on previous occasions after a cold summer. A smaller amount of ripening seems to be required for flowers than fruit. *Alfred C. Waller, Lincoln Place, Marlborough.*

DECORATED LONDON.—We Britishers, it has been asserted, are not artistic; and Londoners must confess that the recent presentation of its vaunted city, en fête, dressed up for the crowning of the King, was not altogether harmonious. Let us take the results achieved by Piccadilly in the embellishment of the exteriors of their houses and clubs as typical of West End taste. To the democratic observer, the kaleidoscopic variety of the show was indubitable—if not "post-impressionist." One house appeared in blue, very prettily valanced like an Early Victorian four-post bedstead. An adjacent mansion was wreathed like a maypole in garlands of real red Roses. Another was quite handsomely and appropriately emblazoned in the armorial bearings and escutcheons of the family who owned it, a sufficient and suitable decoration in itself until it came to the delicate finishing touches, which, unhappily, took the form of gigantic wreaths of artificial Cabbage Roses. A little further on a residence appeared—or, rather, let us say, disappeared—behind an embossed green paper covering of imitation Creepers and vines, which completely disguised it, and served as a background to a company of figures in suits of mail. Like knights on guard in shining armour, cap à pie, they stood on pedestals at intervals between the windows. Owing to their surroundings, the crowning absurdity of which were strings of moulded garlands of portentous appearance, arranged above and below the mailed figures across the façade of the residence, the knights were scarcely suggestive of a Norman origin. The suits of

mail may have been mediæval, but these pseudo-renaissance surroundings did their best to disprove it. These elaborate efforts in decoration were relieved occasionally here and there by the economy or the parsimony of a neighbour who contented himself with a plain, though generally a gaudily-coloured bunting that had evidently served more than one economical cut at previous ceremonials. It was not until the eye had travelled as far as Devonshire House that real taste in decoration appeared to view on any noticeable scale. Here was a charmingly-decorated scheme in "nattier" blue velvet draperies, relieved by hanging baskets of real yellow and white flowers and long, streaming pennons of the Devonshire colours, primrose and white, which reared above the stand and fluttered against the sky. Municipal taste along the road in Piccadilly achieved no better result than that of private individuals, owing to the use of artificial leaves and flowers, which became limp and hung discoloured far sooner than real ones. Municipal decorations in the City, on the contrary, were more successful, as seen on the Friday's Progress of their Majesties. Real trees and flowers were used in many cases, notably on London Bridge and in the Borough High Street, and some appreciation of the value of green in contrast to the greyness of the City surroundings, and in opposition to the brilliant reds and blue in our National flags and uniforms, was evinced in the City's scheme of colour decoration. *Mary L. Baskett.*

A BRITISH GARDENERS' PRIZE AT THE ROYAL INTERNATIONAL EXHIBITION. I fully concur with a *Country Homeowner Secretary*, excellent suggestion (see *Gardeners' Chronicle*, July 1, p. 428), with regard to gardeners subscribing to raise a fund to be offered in a prize or prizes to be known as the British Gardeners' Prizes. The Schedule committee has prepared such an excellent schedule of prizes that I would suggest that the disposition of the prizes should be left to this committee. Should the amount subscribed admit, a class should be arranged in each of the flower, fruit, and vegetable sections, and the squire's gardener should not be overlooked. *Another Country Homeowner Secretary.*

A DISEASE OF ORCHID LEAVES.—Considerable trouble has recently been caused in the Orchard house of the Cambridge Botanic Garden by the fungus *Hypodermium orchidearum*, a parasite which was first described by Cooke and Massee some years ago as the cause of a leaf spot of *Cymbidium eburneum*. At Cambridge this fungus has affected the leaves of several different kinds of Orchids, including species of *Thunia* and *Dendrobium*. The disease has usually begun to develop at the apex of the leaf, from which it spreads downwards until a considerable portion of the leaf is killed. The affected parts become discoloured, and on these dark spots soon arise, from which chains of colourless spores are produced. The spores, which are formed in chains, readily separate from one another at maturity. Tips of Orchid leaves often die from causes unconnected with the action of any particular organism, and from observations at Cambridge it appears that *Hypodermium orchidearum* frequently begins to live as a saprophyte on such dead portions, subsequently invading living tissues, after the manner of so many other injurious fungi. This disease may be checked by spraying the leaves with a dilute solution of potassium permanganate. *F. T. Brooks.*

SALVIA SCLAREA.—May I give the following account of *Salvia Sclarea* shoot, by me at Olympia, as I find it impossible to answer the enquiries of all those who have written to ask about it? The *Salvia* is quite hardy, and grows from 5 to 6 feet high. The heads are a lovely silvery mauve colour, and last from July to September, long after the pale blue flowers are over. The original seed was sent over from the Vatican garden years ago, and the name "Berkshire" variety has been given to it. The flowers were not seen in their real beauty at the show, as they do not travel well, but I shall be pleased for anyone interested in the revival of this scarce plant to come and see it here. *Alce Martineau, Hort. Comm. Hort. Bucks.*



The Week's Work.

PLANTS UNDER GLASS.

By JAMES HUNTER, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

STOCKS.—The type of intermediate Stock known as East Lothian should now be sown to ensure a supply of good sturdy plants for wintering in cold frames. Sow the seeds in the open or in a cold frame, and do not attempt to coddle the plants. As soon as they are large enough to handle prick off the seedlings into 48-sized pots, putting three good plants in a pot. Afford one good watering, and afterwards be chary of applying too much moisture: it generally suffices to merely damp the plants lightly until they are well rooted.

SCENTED-LEAVED PELARGONIUMS.—The flowering season of some of the scented-leaved Pelargoniums is now past, therefore the present time is suitable for thoroughly cleansing the plants. In the first place, remove all the old flower trusses and any faded leaves. This being done, carry out any tying that may be necessary, and afterwards encourage the plants to make fresh growth by treating the root in a liberal manner. Such sorts as *P. capitatum* and *P. Radula* major will soon commence to grow, and continue until the autumn frosts compel the gardener to remove them to a position under glass. The dwarfier sorts, such as Countess of Devon, Pretty Polly, and Prince of Orange, will still continue to flower well in the open garden. If these latter varieties show a tendency to cease flowering, it will be well to dry them off partially and prune them lightly. Afterwards reduce the balls, if this is necessary, and replot them into good soil.

ALOYSIA (LIPPIDIA) CITRIDODORA.—This plant like the scented-leaved Pelargoniums, is at present in the open garden. At this season the species has a tendency to flower, and, unless this is checked, it prevents the plants making strong growth and healthy foliage; therefore pinch out the flower-spikes. If standard or pyramids are desired, any plants now in comparatively small pots or tubs may be given a shift. They will need constant attention in regard to pinching the growths. Large specimens in tubs may be given occasional applications of manure, and they should be syringed freely to prevent red spider.

MYRTLES. Specimen Myrtles must be kept in the best shape possible, both by tying and pruning any shoots that are extra vigorous. Young plants should be encouraged to grow freely, remembering that a Myrtle which presents a starved or stunted appearance is anything but attractive. Myrtles may be raised quite easily from seed, and the young plants grow quickly.

LAVENDER AND ROSEMARY.—In common with all the plants I am mentioning this week, the specimens of Lavender and Rosemary are accommodated out-of-doors at the present time. Lavender and Rosemary though common enough in the open flower border, are not employed as pot specimens for terrace decoration so frequently as they might be. I strongly recommend their cultivation in this manner, for, in addition to their novelty, they have high decorative qualities. All they need during winter is the accommodation of an unheated greenhouse, and a slight frost will not injure them, provided the atmosphere is dry at the time. It may be said that, in both instances, the task of getting good stems to these plants is somewhat tedious, but the results are gratifying. If young plants are now taken in hand for pot culture, it will be possible to have them established by the autumn. They should be kept to single stems from the commencement.

RHODODENDRON INDICUM (AZALEA INDICA).—It is always desirable to expose Indian Azaleas to full sunshine when once they have completed their growth and the shoots have become somewhat hardened. At any rate, this is the best treatment for the greater portion of Britain, but in the more northerly countries, perhaps, a light, well-ventilated greenhouse is the better place for them. Azaleas should be examined

closely for signs of thrips, and if any of these insects are present the plants must be syringed freely and frequently. If they are still contained in the glasshouse they may be fumigated; but those which are already outside should be syringed with a weak solution of some insecticide containing nicotine, such, for instance, as the XL-All insecticide.

FIRES.—Every good gardener will take pains to check the fires early in the day during hot weather, even such fires as are employed for heating the warm pits and stoves. It would not cause harm if such houses were left without any fire-heat at all for a few nights during hot summer weather. At the same time, occasional fires are useful to dispel excessive moisture, this being their principal use at the present time. In sultry weather a little ventilation may be left on at the top of the house at night, even if the pipes are unheated, for no harm will be suffered by the plants if the morning temperature is not lower than 65°.

THE FLOWER GARDEN.

By R. P. BROMBERG, Gardener to the Earl of HADDINGTON, K.T., Tynningham, East Lothian.

ROSES.—It is the practice in the warmer parts of the country to shorten growths of hybrid perpetual Roses to induce the production of shoots that will flower in the autumn. In the north it is preferable not to prune, but to let the shoots develop, when usually flowers are produced at their tips. Climbing Roses are making great progress, and should have attention weekly, tying the shoots and arranging them in the positions to be occupied next year. Those who possess the old *Rosa alphurea* should prune their plants now. The variety flowers profusely at Tynningham, and all the pruning the plants receive is the excision of the growths which have borne the lovely yellow blossoms, just enough young shoots being retained to furnish another season's bloom. It is probably because this Rose is so often pruned in the same manner as other Roses that the species fails to grow well in many gardens.

SWEET PEAS.—We have never had finer Sweet Peas than the earlier flowers produced this season, but more recently the flower-buds on one long row of plants have dropped persistently. In another part of the garden the trouble is not evident. It appears to be a fact that some varieties are more liable to bud-dropping than others. Of those which have retained their flower-buds best are Hugh Dickson, Etta Dyke, and Dazzler. Dazzler is one of the finest salmon-scarlet varieties in our collection, being much more effective than Nancy Perkins or Earl Spencer, though probably inferior to such sorts from the exhibition standpoint. Many complaints reach me of Sweet Peas failing to grow satisfactorily, even though watered during the drought. The only reason I can suggest is that the soil has been left in too loose a condition. When the ground is trenched in autumn for Sweet Pea culture, it is usual, in our case, to have the soil compressed by the feet as the work proceeds, and I think such treatment is essential in gardens where the soil is of a porous nature.

LOBELIA.—The taller Lobelias are developing their flower-spikes, and require some support; but although the plants may grow several feet in height, they do not need stakes of more than a foot high above the level of the ground. Both Lobelias and Pentstemons are benefited by applications of manure water during dry weather.

LAYERING OF CARNATIONS.—It is desirable to push forward this operation in late districts so that the plants may be nicely established by the beginning of September, when they should be planted out or placed in pots. Though the process of layering is a simple one, there are, nevertheless, many failures. These are generally due to carelessness. It is not uncommon to see the layers with their tongues lying on the surface, or to see them broken from the plants, or even to find that, whilst fresh compost has been provided for the layering, the tongue of the layer has been planted below such compost, and, therefore, in the ordinary soil. In order to prevent the tongue from becoming raised, the layering pegs should be pushed into the ground in a slanting direction, as they will hold better and retain the layer in its proper position. In order to pre-

vent the layer from breaking away from the plant, twist it previous to putting it down. Shoots which are placed high up on the stem should be brought down with the whole plant close to the ground.

PENTSTEMON.—In the case of most Pentstemons, short, stout stakes are necessary to support the plants; but there are some exceptions. For instance, Newberry Gem, if planted rather closely together, need not be staked, differing greatly, in this respect, from Preston Hall Seedling and other varieties of taller habit. The dwarf-growing Pentstemon *heterophyllus* is improved in appearance by having short, light canes to support the slender shoots. Some strains of the florists' section are comparatively dwarf, and scarcely need to be staked; but such strains are less effective than the tall-growing sorts, which flop about in the first heavy shower, unless they are properly secured.

FRUITS UNDER GLASS.

By E. BECKFORD, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

THE ORCHARD HOUSE.—As the various crops in this house approach the ripening stage, the use of stimulants should be withheld and only clear water applied; syringing should be discontinued, and the necessary atmospheric moisture must be promoted by damping the ground surfaces freely. Pot trees now swelling, their fruits require strict attention to watering and feeding. It is scarcely possible to admit too much air in hot weather, and ventilation should be employed during warm nights. Support the fruits of Apples and Pears with stout pieces of raffia. Apples will be improved in colour and finish if the trees can be removed out of doors into a suitable position, facing to the south or south-west, plunging the pots in the soil and covering the trees with fish netting. Water carefully as before, and continue to syringe the plants twice daily with clear, soft water. If rain water is not to be obtained, then for preference use water that has been exposed to the sun and air. Attend to the watering and syringing of those trees that have passed out of fruit and are plunged out-of-doors; these should be given occasional applications of manure.

YOUNG VINES.—Those that were planted out in borders will now need cooler conditions and increased ventilation. Allow the leading shoots to grow without check, as this will tend to increase the number of roots in the border. Syringe the plants well and damp the houses as often as necessary, keeping the border well supplied with water. Young Vines that have been grown in pots for planting out or fruiting, will need gradually inuring to more air, and may ultimately be placed out-of-doors where they will ripen their growth. Place the pots on a firm base, where they cannot become waterlogged and earthworms will not reach them.

GENERAL REMARKS.—During hot weather admit abundance of air to all the houses. In the case of vines that are none too well built, it will probably be found difficult to get enough circulation of air and a few scorched leaves will result unless the roof is slightly shaded. Where houses contain Grapes that are now colouring, a fair amount of air may safely be allowed to remain on all night, both at the top and the front ventilators. Afford water to the borders as often as necessary, and manual assistance if a stimulant is desirable. Late Grapes should be examined once more before they get too large and berries removed where necessary. Attend to the stopping of the laterals before these come into contact with the roof glass. Thoroughly damp all the surfaces of the house frequently when the weather is warm. If fire heat is still employed, and the pipes allowed to get warm at night, the paths of the house should be damped last thing, but if the fires are out of use, this is unnecessary. Vines which have been cleared of their fruit should be syringed as previously advised, and the lateral growths allowed to extend. The lateral shoots should never be severely restricted on Madresfield Court, as freedom of growth often prevents the fruit splitting, though, as I have previously stated, the best preventive is early ventilation and allowing the top ventilators to remain open in the evening.

THE ORCHID HOUSES.

By H. G. ALFANSLER, Orchid Grower, 1, Lechliff, Sir G. I. HOLLAND, K. V. O., C. L. E., Westbourne, Gloucestershire.

PHALANOPSIS.—Nothing could be more suitable for these Epiphytes than the tropical weather which prevails as these lines are being written. But owing to the great heat every means must be taken to promote atmospheric moisture. Quick growth is essential just now, provided the growth is consolidated as it is made. Ventilate freely whenever the weather is favourable, and draw up the blinds about an hour before the sun ceases to shine upon the house. Plants which were reported about last March being well established are now rooting freely in the new compost, therefore, they require an increased supply of moisture at the roots, but even now this should not be overdone. I am not in favour of much overhead moisture for these Orchids, and look upon spraying the foliage, even in the hottest weather, as a dangerous practice in the hands of inexperienced men. In certain cases it is advantageous, for instance, plants that were potted late and have not made many roots, must not be given frequent root-waterings, but they may be greatly assisted on bright days, when the atmosphere is dry, by light overhead sprayings. Insects should never be allowed to gain the least foothold on Phalanopsis, as sponging can scarcely be carried out without bruising the foliage. For this reason soft water should always be used, as hard water leaves a deposit on the leaves necessitating some force to remove it, and it is injurious to the roots. A few species of Phalanopsis sometimes produce young plants at the joints of the flower spikes; this occurs in the case of *P. Luddemanniana* perhaps oftener than in any other species. Whenever the spikes, then, are seen to keep green after the blossoms are passed, it will be worth while to leave them for a time if young plants are desired, and later on, should the joints of the old flower spike be seen to be swelling and forming tiny leaves, peg the spike down upon the surface of the rooting material of the parent plant.

THUNIA.—The *Thunias* must be raised to flower, should now be given a position in a well ventilated house where they can be exposed to full sunshine, and be syringed twice or thrice daily. It is from the flowering stage onwards until the leaves begin to fall that *Thunias* are often most neglected. This is a great mistake, for next to the strength and health of the plants the main factor in the production of abundance of bloom is the thorough ripening of the old pseudo-bulbs. Water should be afforded freely to the roots until the autumn, when the leaves begin to decay; then the amount must be reduced gradually until the foliage has all fallen, when the plants should be rested in a light, dry position in a cool house, and watering should cease.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARDEN, A.C.S. Orchard Gardener, Barchinwald, Lancashire.

UNHEALTHY TREES.—It will sometimes happen that, although the soil has been properly prepared and the trees have appeared healthy, yet after a year or two some show a sickly condition, with the foliage pale in colour, and the growth weak. Unless remedial measures are undertaken such trees will ultimately fail altogether. In cases where the trouble is only accidental, corrective root treatment may commence early in the season, as, in fact, as the tree assumes a generally unhealthy appearance. A tree will sometimes become weakly and stunted in growth from having been planted in a careless and improper manner; this I have sometimes found to be the case with those trees, that previous to being planted in the border, had been grown in pots. The roots having been thus confined, they were matted together to such a degree, that it was almost impossible for them to penetrate into the surrounding soil, whereas, had the roots been disentangled and properly spread out, the tree would in all probability have become quickly established. In such cases, the tree should be taken up again, and replanted early in autumn. Where planting has been correctly carried out, and the soil properly prepared, and the tree appears unhealthy after the first or second season, the application of manure water to the roots will very often bring about an improvement,

especially if the soil is allowed first of all to become somewhat dry, before moisture of any kind is administered; this will prevent the soil from becoming sour or overcharged with moisture. First of all, let the border be well watered with clear water, and, after an interval of two or three days, saturate the soil with a stimulant such as manure water obtained from the use of cow manure and soot; such a mixture might be applied several times during the season, allowing the border to thoroughly drain itself of superfluous moisture before repeating the application. If the soil in which the tree is planted is unusually stiff or cold, the addition of a little Peruvian guano or fowl manure might be given with advantage. Whilst attention is being given to the roots, the foliage should be syringed every day, or at least every alternate day during favourable weather. In some instances a tree may become weakly and diseased from having the roots bruised and damaged at the time of taking up and replanting the damaged portions not having been removed. When this is suspected to be the case it is advisable to take up the tree and examine the roots, cutting away any diseased parts before again replanting. A tree that has been planted in a suitable soil may also become unhealthy by reason of the soil becoming poor; a heavy mulching of manure and copious supplies of manure water will often bring about a healthier condition, and render the tree productive. Sometimes trees are unhealthy through being placed in an unsuitable situation; this is frequently the case with Pear trees, soil that is wet and cold causing the roots to remain in a stagnant condition.

THE KITCHEN GARDEN.

By JOHN LASS, Kitchen Gardener, Royal Gardens, Windsor.

SWEET MARJORAM.—The stock of this herb should be ready for planting out on a south border, where the plants may remain until the beginning of October. They should then be carefully lifted and potted into 6-inch pots and placed in a cold pit, where the lights can be closed for a few days until the plants begin to make new roots, after which period the roof may be removed during mild weather, to be replaced on the approach of frost.

SPRING CABBAGE. This is one of the most important crops in the vegetable garden. Two sowings should be made, the first about July 10, and the second a fortnight later. The bed on which the seeds are to be sown should be one which is fully exposed to light and air, so that hard, short-jointed plants may be obtained. When the soil has been dug and made level, it should be trodden lightly, and shallow drills drawn at 1 foot apart; the seeds should then be sown thinly so that no crowding of the young plants may take place. A net should be placed over the bed as a protection from birds. When the young plants appear, a careful watch must be kept for slugs, which may be readily destroyed by dusting the bed with hot lime early in the morning. Favourite varieties at Windsor are Flower of Spring, Offenham, and Ellam's Early.

CELERY.—Careful attention should be given to earthing-up the early plantations of Celery. As soon as the plants are of sufficient size, they should be divested of all side shoots, and any leaves which appear worthless. Afterwards the leaves should be gathered together with the hand and tied with some soft material, which may be removed after sufficient soil has been placed about the plants to keep them together. Choose a fine day for the purpose, and be careful that none of the soil is allowed to get between the leaves or into the heart of the plants. If the bed is at all dry, a thorough soaking of soft water should be given on the night previous to earthing-up the plants. Continue to make further plantations for late supplies; lift the plants with great care, and keep as much soil about the roots as possible. Directly the planting is finished, the bed should be freely watered to settle the soil about the roots. Frequent light dustings of soot may be given throughout the growing season to keep the Celery fly in check.

SHALLOTS. These should be harvested as soon as possible after the tops begin to die. If left in the ground too long, the bulbs may make fresh roots and their keeping qualities suffer accordingly.

LATE BROCCOLI. These plants should be put out as soon as the ground is available for the purpose. It is important that this batch should be planted in an open position, away from the influence of trees. The soil should be made firm before the plants are put out, and spaces of at least 2 feet should be allowed between the plants. The land on which this crop is planted should not be too rich. Before the plants are lifted from the seed-bed a thorough watering should be given, and the ground loosened with a fork, so that the roots may not be injured in taking them up. After planting, a good watering should be given.

HERBS.—Herbs raised from seed should now be pricked off in beds where they may stand the winter and from which permanent plantations may be made next spring. Sweet Marjoram raised from seed and pricked out in boxes may be planted on a south border, where the plants should remain until the beginning of October, when they may be potted up and placed in a slightly-heated pit for winter use.

THE APIARY.

By CHURTON.

TAKING BEES TO THE HEATHER.—Those who live within reasonable distance of heather-covered moorlands must consider which hives may safely be removed, for all will not bear removal either by rail or wagon. Choose those stocks where the foundation is wired in, otherwise the jarring will break down the combs which are always very soft and heavy with brood at this season of the year. Further, those hives are only worth removal that possess a productive queen and are full of bees. In many instances it will repay the beekeeper to strengthen up the chosen colonies with driven bees, or to unite other stocks with them, making two colonies into one. As to packing hives for travelling, first remove all supers and place across the frames two stout laths near the ends, screwing these firmly down to prevent shaking. Nail perforated zinc across the entrance and over the frames, then let the whole hive be securely roped together. Let those who know the nautical "half-hitch" use it when roping, this being the most reliable of knots. If the hives are to be moved by rail, label them conspicuously as "live bees," if by wagon, place the hives on a bed of straw to lessen the jolting. Let the packing be performed at night when all is quiet. When the moorland is reached, place the hives in a widely-spreading circle, facing outwards.

LOSS OF QUEEN.—There is one great danger liable at any season of bee life, but doubly to be watched for at this critical time of a short honey flow, that of the sudden death of a queen. The loss can be easily detected by the frightened and erratic movements of the inmates. In the usual course of events, about three weeks must elapse before another queen can be hatched and ready for work. By this time the honey flow will be over and the whole colony will give no return for the expense of taking them to the moor. It is possible to prevent this loss of valuable time by having extra queens at hand to replace the dead one immediately. As many queens as desired may be taken in a specially-constructed hive, possessing as many entrances as desired, but one roof, allowing one frame and only two or three hundred bees for each queen. If the loss of the original queen is detected at once, the new queen should be introduced by the entrance, and in an hour or so the bees will have resumed their labours. Should some hours have elapsed before the loss becomes known, the new queen must not be introduced until night.

PECULIARITIES OF HEATHER HONEY.—Moorland honey, except where wild Sage is sufficiently plentiful to thicken it, is much too thick to be extracted by the machine. For this reason, it is best to use sections for its storage, as much valuable, drawn-out, frame comb is destroyed when pressing out the honey. Let the storing space be well in advance of the needs of the colonies, and let it also be remembered that it is not possible to wrap up the crates too warmly, though the days are warm at this season, the nights are chilly. Brown paper is an excellent non-conductor, and may be placed between the quilts, tucking all well down at the sides and corners.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JULY 15—

W. Green L. S. S. Edgeware and Little Stanmore Fl. Sh.

TUESDAY, JULY 18—

Roy. Hort. Soc. Com. meet. (Lecture at 8 p.m. by Mr. W. Rickatson Dyke, M.A., on "Irises"). Highland and N. Hort. Soc. at Inverness (4 days). Portsmouth Fl. Sh. (2 days). Nat. Gladiolus Soc. Sh. at R.H.S. Hall.

WEDNESDAY, JULY 19—

Ulverston Rose Sh. in conjunction with Nat. Rose Soc. Newcastle-upon-Tyne Fl. Sh. (3 days). Nottingham Fl. Sh. Liverpool Hort. Assoc. Sh. (Uxbridge and District Fl. Sh.).

THURSDAY, JULY 20—Roehampton Fl. Sh.

FRIDAY, JULY 21—

Hort. Club Outing to Friar Park. Handsworth Fl. Sh. (2 days).

SATURDAY, JULY 22—Paisley Flower Sh. Sh.

ANNUAL MEASUREMENTS FOR THE ENSUING WEEK derived from observations during the last fifty years at Greenwich—63.2.

ACTUAL TEMPERATURES—

Min. 61.2. London, —Wednesday, July 12 (6 P.M.)—Max. 77: Min. 61.2.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, July 13 (10 A.M.)—Bar. 30.5°. Temp. 75°. Weather—Sunshine.

PROBABLE WEATHER, July 12—Max. 77° Yorkshire: Min. 61 B. Wick.

SALES FOR THE ENSUING WEEK.

MONDAY—

The Freehold Horticultural Property, "Redlands Nursery," Emsworth, Hants., with Cottage, 81 Greenhouses, 100,000 Ac. Area, 31 acres. Compact Freehold Property, Alexandra Nursery, Chichester, with Residence, Greenhouses, &c. Area, 1½ acres, by Protheroe & Morris, at the Mart, E.C., at 2.

WEDNESDAY—

Blocks and Plots of Freehold Land at Dartford, suitable for Horticultural purposes, by Protheroe & Morris, in a marquee on estate at 4.

FRIDAY—

The Freehold Fruit-growing Property, "Dukes," Bradninch, Devon, with Residence, Greenhouses, &c. Area, 8 acres planted fruit, by Protheroe & Morris, at Half Moon Hotel, Exeter, at 3.

The National Rose Show.

The National Rose Society's metropolitan exhibition was held in glorious weather on the 7th inst., and is duly reported in this issue. The comfort of visitors was well served by the honorary secretary, Mr. Mawley, who, remembering the unpleasant conditions caused by adverse weather in past years, took advantage of the structure recently erected for the Coronation Ball; thus he secured a large tent with a double roof and ample means of ventilation.

Early in June, when the hot sunshine caused the Hybrid Teas to open earlier than their usual period of flowering, it was confidently prophesied that 1911 would be found to be most favourable for the Hybrid Perpetuals, and the dull weather of the latter part of June seemed to render this forecast increasingly probable. The result, however, has not been according to expectations, for, if we can except Frau Karl Druschki, Hybrid Perpetuals were few in number and poor in quality. Indeed, the show has once again proved the success of the Hybrid Teas and decorative Roses.

Owing to the great heat most exhibitors were compelled to trust to their younger flowers. Nevertheless, the blooms suffered severely, and there was a general impression that even in the winning stands the flowers were smaller than usual. It was surprising to note how well the variety Avoca withstood the heat; it is rather a thin, but perfectly-shaped flower, and, as may be seen also in the variety Killarney, the inner petals seem to fold over the

centre and preserve the Rose for a considerable time. It is a beautiful and bright flower, with sweet scent, and it gained the medal offered for the best H.T. in the amateurs' classes.

The exhibition was a great event for Irishmen. For the third year in succession they were able to win the Nurserymen's Challenge Trophy. Mr. Hugh Dickson and Messrs. Alexander Dickson and Sons showed boxes of excellent blooms in the Champion Class, in which Messrs. Harkness & Son were the only English firm which secured a place. Mr. Hugh Dickson's collection of 72 blooms was noteworthy for its excellent flowers of some of the newer varieties, such as Leslie Holland, Mrs. Stewart Clark and King George V.

Among the amateur cultivators Mr. Lindsell appears but little affected by good or bad seasons, and he was able once more to take the position as Amateur Champion he has occupied at so many exhibitions.

The decorative Roses formed a prominent feature of the show, and probably neither Messrs. G. Paul & Son, who obtained the first prize for a group of Roses arranged on the floor, nor Messrs. W. & J. Brown, who won the premier award in the class for a group arranged on the stage, have ever produced more beautiful effects. Less elaborate but both tasteful and fresh was Mr. Mattock's exhibit of 36 garden Roses, which won the "Turner" Cup. The small, yellow Rose Peggy and the variety Simplicity were noticeable. Simplicity, white and nearly single, is a difficult Rose to show well.

The new section for perpetual flowering garden Roses was intended to provide for the heavier varieties found particularly among the Hybrid Teas and Teas, such as Mme. Leon Pain, Richmond, and Mme. Abel Chatenay, which are capable of decorative arrangement, but are intermediate between the typical garden Roses and the exhibition varieties. Three methods of staging were provided for in the schedule, namely, in baskets, in vases, and in exhibition boxes. The exhibits shown in this section in baskets, except where the flowers were a little too crowded, provided a very good effect, but in the vases and boxes there seemed to great a tendency to introduce single and semi-double Roses. A spray of single Roses, set up in an exhibition box, produces an incongruous and distressing effect. Perhaps another year something might be done to indicate more clearly what is desired. This criticism, however, in no way applies to the winning exhibit in the nurserymen's section, for the arrangement of colour in that case produced an exceedingly rich effect.

The tent for new Seedling Roses and sports was as popular as usual, and all day long visitors waited their turn to enter. On the whole the novelties were disappointing, but there was one beautiful new Rose, obtained from Pernet Ducher, with long shell-like petals and a brilliant orange-coloured centre, becoming towards the outside a pale but clear yellow, or to describe it in terms of other Roses, the centre was like Lena with the least wash

of vermillion, whilst the outer petals resembled those of Harry Kirk. It was shown in perfect condition, and, though rather small, is very beautiful. This variety has been given the inappropriate name Sunburst.

The president, Rev. Joseph Pemberton, received a Silver-gilt Medal for the little cluster Rose Danaë he first showed last autumn. It is bright and pretty, a pale-yellow as shown, and if it will keep its colour and flower well from June until October it should be a valuable acquisition.

The Society may well be proud of the taste shown by its lady members. Their influence was apparent in the arrangement of decorative exhibits in various parts of the show, but it was supreme in the special tent which contained the bowls and vases, the baskets, and the table decorations. It is with no lack of admiration of the artistic merit of many of the exhibits that we venture to offer some criticism. The bowls and vases were again strong classes, and so good, that judging was a difficult task, the winning vase of Irish Elegance being particularly fresh and beautiful. But in some cases the Rose had been denuded of its foliage, and leaves of R. rubrifolia, or other tinted Rose foliage, substituted. Charming effects were obtained by this method, but to those who live much among their Roses, and get to know their natural setting, it comes as a slight shock to see their old friends in these new garments, and rosarians are not willing to admit without question that the novel method is more artistic than nature's model. The baskets are always subject to changes of fashion, and the present tendency seems to incline towards decorating the handle at the expense of the basket. Within limits this is legitimate, for the class is necessarily artificial in character, but the limit is nearly reached, and there is the danger of exaggeration. Perhaps no classes at the show are more criticised than those for table decoration, and few are more attractive. In a sense we all have a personal interest in this class, for the decoration of our dinner tables has become a universal practice, and what flower is more interesting for the purpose than the Rose? It is not always remembered, however, that one of the qualities most desirable in a dinner table decoration is that it should give a certain sense of repose, and should charm our eyes without disturbing them by contrasts of colour or material. For these reasons, it is desirable to use one variety of Rose only, without the addition of Fern or foliage other than leaves of the Rose itself, and it may be urged by some that single and double Roses of the same shade should not be employed. Nevertheless, this combination was tried with good effect by two competitors, who had cleverly arranged together the Lyon Rose and Irish Elegance. Tried by the strict test, no doubt some of the tables would fail to pass with honours, but it must be remembered there are many diners and many tastes. One of the most pleasing tables was arranged with the single-flowered sprays of a Rambler Rose; it was charming in its freshness and simplicity.



RHODODENDRON LODERI. FLOWERS, WHITE.

A HYBRID RAISED BY SIR EDMUND LODER, BART., FROM A CROSS BETWEEN R. GRIFFITHIANUM AND R. FORTUNEI.

OUR SUPPLEMENTARY ILLUSTRATION.—A few years ago, writes H. H. SIR EDMUND LODER crossed *Rhododendron Griffithianum* (Aucklandi) and *R. Fortunei*. The former is a Himalayan species, which has been in cultivation for about 50 years. It is described as forming a stout, spreading shrub or tree up to 40 feet in height, and it is distinguished by the young growths being clothed with long, rose-red bracts, by the flowers being in loose heads and on long pedicels, and by their large size, 6 inches or more in diameter, their shape being more like a saucer than a bell; they are pure white and very fragrant. *R. Fortunei*, a Chinese species, was introduced in 1859. It forms a shrub up to 12 feet in height: the flower-heads are loose, the flowers saucer-shaped, and about 4 inches in diameter, generally 7-lobed, very fragrant, white or tinged with rosy-lilac. These two species are so nearly related that they have been considered to be geographical forms of one species. Numerous hybrids have been raised in gardens from each of these two species, such, for instance, as *kewense*, *Manglesii*, *Beauty of Tremough*, *Luscombei*, *Duke of York*, and *Pink Pearl*. But no one appears to have considered it worth while to cross *R. Griffithianum* with *R. Fortunei* until Sir EDMUND LODER attempted it, and his object was to prove that these species were the parents of *R. kewense* rather than to create another hybrid. The result of the cross was to produce a number of distinct seedlings, all fairly intermediate in character, but showing some variety in size and colour. Mr. (now Sir FREDERICK) MOORE and I saw them in flower at Leonardslee last June, and we agreed in the opinion that they were most valuable additions to garden *Rhododendrons*, probably the most valuable of all the direct hybrids so far raised directly from *R. Griffithianum*. The flowers were quite 6 inches in diameter, they had six segments, were fragrant, and they varied in colour from clear ivory white to a soft rose. The best of them had been named by Sir EDMUND LODER.

that they must all be brought under one family name as in the case of *kewense*, *Luscombei*, &c., and it was decided to call them *R. Loderi* with varietal names also for the distinct forms. Sir EDMUND LODER and his daughter, Mr. W. A. COOK, have earned the gratitude of lovers of *Rhododendrons*, and added to the glory of the celebrated garden at Leonardslee by raising this beautiful hybrid. So far it has proved quite hardy in its place of origin, and as *R. Fortunei* is hardy in many parts of the British islands, we may reasonably expect *R. Loderi* to be so. The other parent, *R. Griffithianum*, is too tender to be grown out-of-doors except in the most favoured gardens. It is as well to add that the seedling *Rhododendron* known as *Loder's White* is of unknown origin, although it bears traces of *R. Griffithianum*. It has comparatively small white flowers, and is remarkably free. In Cornwall it has become popular for pot culture, as it bears forcing well.

HORTICULTURAL CLUB.—The annual outing will take place on the 21st inst., when the members and friends will visit Friar Park, Henley-on-Thames, the residence of the Vice-President of the club, SIR FRANK CRISP. The party will travel by rail from Paddington to Reading by the 10.33 a.m. train, and from Reading proceed to Henley by a launch provided by Sir FRANK CRISP. After luncheon at Henley, provided by the Vice-President, an inspection will be made of the Friar Park Gardens, including the Rockery. On the return journey the party will proceed from Henley to Marlow by launch. Tea will be taken at Marlow, and, afterwards, the return journey will be by train from Marlow

Station to Paddington, arriving at this latter place at 9.30. The Hon. Secretary, Mr. R. HOOPER PEARSON, requests that members who desire to join the excursion will send their remittances direct to the Hon. Treasurer, Mr. HARRY J. VEITCH, Royal Exotic Nurseries, Chelsea.

SIR FRED. W. MOORE.—As these pages are being prepared for the press an intimation reaches us from Dublin to the effect that His Majesty the KING has personally conferred the honour of knighthood on FREDERICK W. MOORE, M.A., V.M.H., Keeper of the Royal Botanic Garden, Glasnevin. This intelligence will be received with general enthusiasm, and by gardeners especially, not only because the KING's gracious act confers an honour upon horticulture, but also for the great esteem in which "MOORE of Glasnevin" is universally held. It will be remembered that the last honour he received was that of "M.A." *Honoris Causa* conferred by the Royal University of Ireland in November, 1909. On that occasion we referred to the excellent work Mr.



SIR FRED. W. MOORE, M.A., V.M.H.

MOORE has done for the Irish Board of Agriculture in spreading information on fruit and vegetable culture amongst the Irish farmers. Our congratulations to the "Keeper of Glasnevin" and Lady MOORE will be echoed heartily by every reader of these lines.

"THE BOTANICAL MAGAZINE."—The issue of the *Botanical Magazine* for June includes a very large plate of *Cattleya Rex*, tab. 8377. This species was first described by Mr. JAMES O'BRIEN in *Gardeners' Chronicle*, December 13, 1890, p. 684. The flower is very handsome, the ivory-white sepals and petals being set off by a yellow and purple-coloured lip.

COLUMNEA GLORIOSA, tab. 8378, is a very showy species of the Gesneraceae, the colour of the flowers being scarlet with a suffusion of yellow on the face of the corolla tube. This *Columnea* makes an excellent basket plant.

PROSTANTHERA PULCHELLA, tab. 8379.—This species forms an under-shrub about 1½ feet high, with slender, graceful twigs, terminating in

racemes of lilac-coloured flowers with a few dark purple dots in the throat. The species is a native of New Zealand, and specimens have flowered in the open at Trescoe Island, Isles of Scilly, but the plant will probably require the protection of a temperate house in most localities in this country.

PTERONIA INCANA, tab. 8380.—The *Pteronias* are small, South African shrubs, and *P. incana* is found wild over a large area extending from Lesser Namaqualand to Albany. It forms a bush about 3 feet high, and produces a wealth of blossoms remarkable for their sweet Peach-like odour. The plant does not flower freely at Kew; the specimen from which the illustration in the *Botanical Magazine* was prepared was obtained from La Mortola, Ventimiglia.

SAUSSUREA VEITCHIANA, tab. 8381, is a Thistle-like plant introduced by Mr. E. H. WILSON from China whilst collecting on behalf of Messrs. JAMES VEITCH & SONS.

THE ROYAL VISIT TO IRELAND.—The gardens at Dublin Castle were specially planted on the occasion of the KING's visit by Messrs. CHARLES RAMSAY & SON, Ballsbridge. This firm also arranged the bouquet of pink Carnations presented to QUEEN MARY by the Kingstown Council, and the bouquet of Orchids presented by Lady GARDINER on behalf of the Pembroke Reception Committee.

ATTEMPTED SHIPMENT BY AEROPLANE.—A letter we have received from the *American Florist* contains details of an attempted shipment by aeroplane at the instance of Mr. W. ATLEE BURPEE, the well-known seedsman, of Philadelphia. Mr. BURPEE had contracted with a store for the delivery of the package before sailing, and the store in turn engaged Mr. THOMAS SOPWITH, the English aviator. On the 28th ult., with Mr. RICHARD R. SINCLAIR, Secretary of the Aero Club, holding the package, Mr. SOPWITH timed his flight to meet the White Star liner "Olympic" in the narrows. While Mr. SOPWITH controlled the aeroplane, Mr. SINCLAIR dropped the package at the given signal, but, unfortunately, the news comes by wireless telegraphy that the package fell into the sea and not on the deck of the liner. Mr. BURPEE was accompanied on the passage by Mr. E. W. KING, of Messrs. E. W. KING & CO., Coggeshall, and Mr. E. J. CULLEN, of Messrs. THOMAS CULLEN & SONS, Witham.

NEW ROSES AT BAGATELLE.—The final inspection of new Roses planted at Bagatelle in 1910 took place on June 14, when the following awards (*Le Jardin*, June, 20, 1911) were made:—Gold Medal for French Roses was awarded to *Beauté de Lyon*. Jonkheer J. L. Mock, a Dutch Rose, comparable with *La France*, but larger, obtained the Gold Medal for foreign Roses. Among Roses commended by the Jury were—Viscountess Enfield (orange), May Millers (white, rose flush), William Speed (white, delicately tinted). *Climbers*: *Desiré Bergera*, flowers very abundant, white and yellow, and Flower of Fairfield, a variety which resembles *Crimson Rambler*, but blossoms all through the season.

NEW PLANTS AT THE SPRING EXHIBITION (PARIS).—The following Certificates of Merit were awarded at the Exhibition du Cours le Reine, and published in *Le Jardin*:—MM. CAYEUX-LECLERC, *Campanula longistyla parviflora*; MM. CAYEUX-LECLERC and MAISON FÉRAUD, *Anthemis Mme. Sander*; M. VALERAND, *Gloxinia Goliath* and *Begonia Souvenir de République*; M. FÉRAUD, *Viola cornuta excelsior*; M. MOULLÈRE, several varieties of *Hydrangea hortensis*.

THE LATE DR. BOLUS AND THE SOUTH AFRICAN COLLEGE.—The will of the late Dr. HARRY BOLUS, F.L.S., of Kenilworth, near Cape Town, contains a munificent provision for scientific and educational objects. His herbarium and library are left to the South African College, Cape Town, an institution in which he had previously shown his interest by a large contribution to the foundation of the Chair of Botany, which is called by his name. He leaves a sum of £20,000 invested in Government stock at 4 per cent. on trust for the upkeep and extension of the herbarium and library. This amount will later be increased by an additional sum of £7,000. A further amount of £21,000 is also left to the same College for the foundation of scholarships. It is directed that in the selection of scholars to benefit under this fund regard shall be paid to necessary circumstances and proof of industry, and not exclusively to ability. Eventually Dr. BOLUS' landed property, on which is situated the house in which he lived and in which he did the greater part of his botanical work, becomes the property of the College, the proceeds to be applied to the purposes previously indicated. This is the largest bequest ever made to an educational institution in South Africa. An obituary notice of Dr. BOLUS was printed in our issue for June 3 last, p. 358.

FLOWER SHOW AT A BANK.—The following communication is sent us by an ardent horticulturist who is intimately connected with the London banking business:—"On the 8th inst. a very interesting flower show was held at the British Linen Bank in Threadneedle Street. A member of the Floral Committee of the R.H.S. acted as judge of Roses and Sweet Peas, the only two classes in which there was competition. He was much surprised that the staff of one bank could stage such numerous well-grown exhibits as those shown. After the prizes (including a silver bowl from the manager) had been awarded, the judge drew attention to the fact that to the best of his knowledge the exhibition was unique, and he sincerely hoped that it would become the starting point for the 'City of London Bankers Horticultural Society.' Seeing that practically the whole staff attended the show, from manager to messengers, and that nearly one half of those present either competed in the two classes or staged some cut flowers ('not for competition') he had no doubt that from this comparatively small beginning great results would follow. Properly organised, such a society should for many reasons meet with support from banking directors and managers, and there is no reason to suppose that other banks do not contain a large percentage of keen gardeners." We trust that the movement which has commenced so auspiciously may so commend itself to those concerned with the management of other banks, that in the near future there may be amateur flower shows in the City that will stimulate the interest already taken in practical gardening.

WORKS ON ROSES.—Messrs. HODGSON & Co. inform us that in their sale of books to be held on the 19th, 20th, and 21st inst., will be included books on Roses and Rose culture, by English, French, and German authors, comprising 73 volumes.

PUBLICATIONS RECEIVED.—*Farm Poultry*, by W. R. Graham, B.S.A. Ontario Department of Agriculture, Ontario Agricultural College, Bulletin 183. (Toronto: L. K. Cameron.)—*Children's Gardens*, by Mrs. Mabel Edwards Webb. (London: Agricultural and Horticultural Association.) Price 1d.

SOCIETIES.

ROYAL HORTICULTURAL.

OLYMPIA SHOW.

(Continued from p. 19.)

EXHIBITS OF HORTICULTURAL SUNDRIES.

Messrs. LIBERTY & Co., Regent Street, London, showed a representative collection of their terracotta garden pottery, made of porous clay, with, in many instances, a broken colour effect obtained by using wood fuel when baking the articles. When new, many of the vases have too bright a red colour, but on exposure to the atmosphere these receptacles quickly assume a weather-beaten appearance. The vases were of varied sizes. Long, narrow troughs of a window-box size and shape are well adapted for window gardening, and these receptacles are to be preferred to wooden boxes, which quickly decay and harbour insect pests. Terracotta pillars, to be used as supports for pergolas, of light and graceful designs, had well-flowered cluster Roses trained around them, and many of the vases contained such plants as Hydrangeas, Marguerites, Liliums, and Palms growing in them.

Messrs. CASTLE, Baltic Wharf, Millbank, exhibited teak wood garden furniture, made from the timber of old warships. There was a very good collection of garden chairs, benches, and tables. These articles of furniture were not stained or varnished, but they were well polished, and therefore impervious to water. The tops of the tables intended to be stood out-of-doors were composed of 1-inch-wide rafts of teak wood, with spaces between them, so that they quickly dry after showers of rain, and many of the chairs were made on the same excellent principle. (Silver Flora Medal.)

Messrs. WM. WOOD & Co., Wood Green, London, N., displayed a varied assortment of garden ornaments in lead and pottery, as well as garden seats and vases. Sundials, mounted on ornamental, but unobtrusive pedestals were placed amongst the vases and seats. The same firm had also a collection of garden sundries, such as watering-pots, syringes, rubber hose, &c. Good samples of Orchid peat and yellow loam were shown, with a tub of "Nidos," their Orchid compost, ready for use. At the back of the stand, Messrs. WOOD had an infinite variety of chemical manures, both in liquid and powder forms. Bamboo sun blinds, boxes, hampers, tying materials, a variety of baskets, and Bamboo canes.

THE LEYTON TIMBER Co., High Road, Leyton, showed an attractive selection of rustic wood-work. It was arranged in the form of an arched trellis-work enclosure, containing several well-designed summer-houses, garden chairs, and tables. The chairs and seats were more comfortable than their appearance suggested, and, after the gloss of the varnish had become dull, they would be in perfect harmony in the garden or along woodland walks.

Messrs. MAGGS & Co., Clifton, Bristol, showed teak seats and tables suitable for placing in the garden or in summer-houses. Plant-tubs and a few jardinières, also made of old man-of-war teak wood, were shown by this firm.

A variety of light ladders and steps were exhibited by the PATENT SAFETY LADDER Co., Peterborough. The ladders were mostly of the extension principle, and were provided with a patent counter-balance, which, as the extension was being elevated, locked on each rung of the ladder; a side rope released the catch, so that the extension might easily be lowered.

Mr. JOHN PINCHES, Crown Buildings, Camberwell, S.E., showed stamped metal labels of many sizes. Bloom protectors, exhibition boxes, complete with tubes and many kinds of flexible metal labels were set out.

Messrs. JULES LANG & SON, Bury Street, St. Mary Axe, London, arranged a very tempting display of various bottled fruits and vegetables, which had been preserved from six to eight years, and appeared as though they would keep fresh and good for a further similar period.

Mr. W. POUTART, Twickenham, Middlesex, staged an exceedingly fine collection of many kinds of bottled fruits, which plainly demonstrated the excellence of his method of preservation. The bottled fruits retained their shape and colour, and appeared very tempting.

Mr. J. HAWS, Clapton, N.E., staged a selection of his well-known watering-pots. Besides his ordinary type of watering-can, this exhibitor showed many novelties, including some with adjustable handles to fix on to the bottom of a can, for use when watering plants on an overhead shelf. Small watering-cans, with spouts bent downwards for watering table plants were shown in attractive colours. Very ornate, small cans, nickel-plated and in brass, intended for use at ceremonial tree-plantings, were also exhibited in this group.

Messrs. CHAS. KINNELL & Co., Southwark Street, S.E., placed some large tubular boilers, as well as smaller heating apparatus suitable for heating glasshouses. This firm also showed a simplified ventilating gear (Englemann's patent), which is simple in arrangement and easy to work.

THE THAMES BANK IRON Co., Upper Ground Street, S.E., had a variety of full-sized economic boilers.

Messrs. WM. DUNCAN TUCKER & SONS, 27, Cannon Street, E.C., erected two span-roofed greenhouses. These were light and airy structures, and appeared to be well adapted for growing cool and greenhouse plants. Span frames, with a patent ventilating arrangement, were also shown by these exhibitors.

Mr. JOHN P. WHITE, The Pyghtle Works, Bedford, had a very artistic group of garden furniture. A green, wooden trellis partly enclosed some very choice examples of marble vases, old sun-dials, leaden figures, and vases. A leaden bird's bath, with a layer of gravel in the bottom was a particularly fine piece of work, as also were a pair of old leaden vases.

THE SELBORNE SOCIETY, Brent Valley branch, Hanwell, staged a number of interesting nesting-boxes made from natural logs, suitable for fastening to trees, posts or walls.

Mr. G. SLATTER, Long Row, Nottingham, had on view a useful attachment for the lawn mower, in the form of an adjustable verge cutter. When the grass verges are kept in good order, such a verge-cutter is a great time-saver.

Messrs. BLAKE & MACKENZIE, Islington, Liverpool, staged waterproof flower-pots. These are made of stiffened paper, and are well adapted for raising seedling plants which do not long remain in the same receptacle. Being light and unbreakable, these pots are admirable for sending small plants by rail or post.

THE PERMANENT PRINTING Co., Holborn, London, had a selection of their new "Ivo" garden label. These labels, which were shown in green and white ivory, may be had in any colour. The names or any advertising matter is printed by the firm with a patent ink, which is impervious to the atmosphere or water. This material is equally well adapted for colour-printing; the company had on show the Royal coat of arms in blue, rose, and gold, beautifully executed.

British-made bell glasses of good-quality glass were staged by Messrs. CHANCE & Co., Halesowen Street, Oldbury. These indispensable adjuncts to present-day gardening were also shown with an arrangement for ventilating at the apex.

Messrs. WM. COOPER & NEPHEWS, Berkhamsted, had an at-active display of their spray fluids. Along the front of their stand were placed dried specimens in glass-lidded boxes, showing the damage caused by various insect and fungous pests.

Messrs. LAWRENCE, LLOYD & Co., Worship Street, Finsbury, showed the Pennsylvania lawn-mowers and lawn-clearer.

Messrs. H. PATTISON & Co., Streatham, staged a great variety of horse-boots. Those with special rubber soles would be excellent for use on slopes and in slippery places, the roughened rubber affording a better grip than does smooth leather.

THE ALPHA EXTINGUISHER Co., Ross, Herefordshire, gave many demonstrations in the working of their sprayers and fire extinguishers.

THE FOUR OAKS SPRAYING Co., Sutton Coldfield, Birmingham, had an extensive collection of their spraying appliances and well-known indelible syringes.

"Abol" syringes and insecticides were staged by Messrs. E. A. WHITE, Paddock Wood, Kent.

Mr. ARTHUR WALDEN, Delamere, Poole, Dorset, explained the advantages of his patent manure-infuser. This is in the form of a finely-perforated, galvanised pail, with a tightly-fitting lid, which contains the organic manure. The cone arrangement in the middle of the pail facilitates the infusion of the water when the pail

of manure is plunged into a cask of water. It is a more expeditious way of making manure water than the old bag method.

Messrs. SANKEY & SONS, of the Royal Potteries, Bulwell, Notts., had an interesting stand of their famous pots and seed-pans. The tiny, thimble-sized pot, so rarely seen by the private gardener, reposed, many dozens, in a square Fern-pan, and pots of every succeeding size, up to large 16-inch receptacles, were exhibited in perfect shape and make. A most comprehensive selection of ornamental pottery pans and vases was shown. The ornamentation was neat and tasteful, Ferns and other plants growing in such pottery may well be placed direct into any dwelling room.

Messrs. J. CRISPIN & SONS, Bristol, erected a small span-roofed glasshouse of the villa conservatory type.

Scientific Committee.

JUNE 20.—*Present*. Mr. J. T. Lennett-Poe, M.A. (in the Chair); Prof. Boulger, Dr. Voelcker, Messrs. R. H. Pearson, J. O'Brien, W. Fawcett, J. Odell, A. Worsley, and F. J. Chittenden (hon. sec.).

Catasetum.—"C. flavum."—MR. JAMES O'BRIEN showed plants under this name from the collections of Sir Trevor Lawrence, Bart., and Sir Jeremiah Colman, Bart., respectively. The flowers presented several minor points of difference in coloration and in the form of the lip, but both had a large callus upon the latter. No essential difference was to be seen in habit. Mr. O'BRIEN considered them to be forms of one species, a view with which Dr. Rendle, to whom they were referred, concurred. Dr. Rendle regarded them as forms of the very variable *Catasetum Bungei*, a Venezuelan species figured in *Bot. Mag.*, tab. 6968.

Malformed Cattleya.—MR. O'BRIEN also showed a malformed *Cattleya labiata*, upon which Dr. Rendle commented as follows:—"The dorsal sepal has become broad and short, resembling more the lip and petals; the lateral petals have become shorter, resembling the lip in colour, but slightly smaller; they are enclosed by the lip and convolute with each other; the dorsal sepal, with lip and petals, formed a central rosette; the lateral petals are shorter than usual, but otherwise normal. The column is reduced, forming a pillar-like structure bearing an adorted anther."

LINNEAN SOCIETY.

JUNE 15.—Dr. A. B. Rendle, F.R.S., Vice-president, in the chair.

A letter congratulating Sir Joseph Hooker on his approaching 94th birthday was read and signed by the Chairman and the Fellows present.

Mr. W. Fawcett, F.L.S., showed:—

(a) A parasitic flowering plant from Jamaica (*Sesuvium jamaicense*, Schott and Endl.).

(b) Flowers of Banana (*Musa parasitica* var. *sapientum*).

The cultivated Banana plant attains its full height before the flowers are formed. The trunk is a hollow cylinder formed by the bases of the leaf-stalks. The flowering-stalk first appears as a projection from the tuber into the base of the cylinder. The first flowers are formed while the stalk is quite short, and apparently it takes about six weeks for it to grow from the base until it emerges at the apex. The flowers exhibited were taken before emergence. They occur in clusters spirally arranged round the peduncle. The lowest clusters are female flowers, in which the ovary is two-thirds of the length of the whole flower; the highest clusters are male flowers, in which the ovary is only one-third or even one-fourth of the length of the whole flower. Between these two sets of clusters there are very often a few clusters in which the ovary is about half the length of the whole flower; these are probably not truly hermaphrodite, but neuter. The relative length of the ovary can be easily seen at the earliest stages, when the peduncle is only a few inches high.

The ovaries of the female flowers become the Banana fruit; those of the neuter flowers grow into small, worthless fruit. The male flowers and bracts are deciduous, and the peduncle continues to lengthen and produce male flowers until the fruit is cut.

Mrs. Longstaff showed a specimen of *Brassia nodata*, Lindl., in flower, from Jamaica, which

was followed by remarks from Mr. W. Fawcett and the Chairman.

Sir Frank Crisp exhibited, on behalf of Mr. William Morris, a monstrous proliferation of a Foxglove, in which the terminal flower had attained an extraordinary development.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 15.—*Committee Present*: Messrs. E. Ashworth (Chairman), Ward, Cowan, Thorp, Arthur, Sander, Cypher, Keeling, Parker, and Weathers (hon. sec.).

This was the closing meeting of the season, and only a small display of plants was made.

The principal interest centred in the competitions for the past season, the most important of which was the "Charlesworth Cup," a trophy of considerable value, offered for plants not previously certificated by the society. W. R. LEE, Esq., Heywood, who has been a consistent exhibitor, was an easy winner, S. GRATRIX, Esq., being placed 2nd. The "R. Ashworth Cup," offered for general excellence, was won by the same exhibitor, and the "Robson Cup," for Odontoglossums and allied genera, was also won by Mr. LEE.

The officers appointed for the season 1911-12 were as follows:—Chairman, Rev. J. Crombholme; Vice-Chairman, L. A. Ward; treasurer, G. H. Peace; auditor, H. Thorp; secretary, H. Arthur.

WINDSOR AND ETON ROSE.

JUNE 28.—The annual exhibition of this society was held on the foregoing date, in beautiful weather. The general excellence which usually characterises this show was this year not maintained. The exhibits were not so numerous, and the quality of the blooms was below the average. The Rose show at the Crystal Palace, held on the preceding day, no doubt, partly accounted for the falling-off at Windsor.

The King's Challenge Cup, presented by the late King Edward for 48 blooms, distinct, was won by Messrs. R. HARKNESS & Co., Hitchin, with a good stand of fresh flowers, Dean Hole, Florence Pemberton, J. B. Clark, Gustave Piganeau, Mrs. W. J. Grant, Etienne Levett, Lyon Rose, Caroline Testout, and Gladys Harkness being some of the best varieties. 2nd, Messrs. B. R. CANT & SONS, Golders Green; 3rd, Messrs. A. DICKSON & SONS, Newtownards.

Messrs. R. B. CANT & SONS led in the class for 18 Teas or Noisettes, having choice blooms of Maman Cochet, Medea, Molly Sharman Crawford, White Maman Cochet, and Mrs. E. Mawley; 2nd, Messrs. D. PRIOR & SON; 3rd, Mr. J. PIGG, Royston.

Messrs. R. HARKNESS & Co. won the 1st prize offered for 12 distinct varieties, three blooms of each, Ulrich Brunner, Lyon Rose, Mildred Grant, Frau Karl Druschki, Mrs. J. Laing, and Mrs. Theodore Roosevelt being especially good. 2nd, Messrs. A. DICKSON & SONS; 3rd, Messrs. D. PRIOR & SONS.

For 12 blooms of any H.T. or H.P. variety, Messrs. ALEX. DICKSON & SONS were a good 1st, showing Mildred Grant finely. 2nd, Messrs. D. PRIOR, with Lady Ashtown; 3rd, Messrs. R. HARKNESS & Co., with Lyon Rose.

Messrs. D. PRIOR & SONS excelled in the class for 12 blooms of any Tea or Noisette variety, with splendid blooms of Mme. Jules Gravereaux. 2nd, Mr. J. PIGG, with Molly Sharman Crawford.

The only exhibit of 18 bunches of decorative Roses, distinct, was shown by Mr. CHARLES TURNER, Slough, but the exhibit was well worthy of the 1st prize that was awarded. Crimson Rambler, Bardou Job, Gardenia, Mme. Ravary, and Lady White were notable varieties shown well in this collection.

For 12 blooms of any crimson and 12 of any white variety, Messrs. G. & W. BUNCH, Peterborough, were placed 1st for splendid flowers of J. B. Clark and Frau Karl Druschki. 2nd, Messrs. D. PRIOR & SONS.

AMATEURS' CLASSES.

There were only two competitors for the Windsor Cup, offered for 24 blooms, distinct, and Mr. E. B. LINDSELL won easily, having some very choice blooms. 2nd, Mrs. E. P. STEVENS.

Mr. E. B. LINDSELL also won the Princess Alexis Dolgorouki's Challenge Cup, offered for eight varieties, distinct, three blooms of each variety.

Mrs. W. A. OWSTON offered a Challenge Cup in the class for 18 blooms, distinct. It was won by Mr. W. ONSLOW TIMES, with excellent specimens of Helen Keller, Dean Hole, J. B. Clark, and Frau Karl Druschki. 2nd, Mr. J. B. FORTESCUE.

Mr. W. L. WITTEN won 1st prizes in the classes for 12 blooms, distinct, and for 12 distinct, open only to growers of not more than 1,000 plants.

Mr. FORTESCUE won the Cup presented by Lady Mary Arkwright in the local classes for 24 blooms, distinct; also the Cup presented by Lady Evelyn Mason for six bunches of decorative Roses. Mr. A. L. COOK, Mr. E. SHACKLE, Mr. J. G. CAREY, Mr. E. CLIFTON BROWN, Rev. H. TOWER, and Mr. F. GOVETT also won prizes in this section.

Mrs. Bevil Fortescue's Cup was won by the Rev. J. B. SHACKLE. The same exhibitor also won the 1st prizes offered for nine Tea or Noisette varieties, showing Mrs. J. Laing; for six blooms of any H.P. or H.T.; and also for six Tea or Noisette Roses.

The class for decorated dinner tables was well contested, Mrs. W. MASLIN having a very tastefully-arranged table of Sweet Peas, Gypsophila, and grasses.

Messrs. HARKNESS & Co. won the National Rose Society's Medal offered for the best Rose in the show with a bloom of Mrs. T. Roosevelt.

The Marchioness of Normandy's Cup, offered for a group of plants, was won by Mr. E. WAGG.

The trade exhibits were not so numerous as usual. Mr. C. TURNER, Slough, showed hardy flowers, Carnations, and Roses; Messrs. J. VEITCH & SONS, LTD., Chelsea, Roses; Messrs. GEO. JACKMAN & SON, hardy flowers; Mr. THOS. TUBB, Farnham Common, Roses; Messrs. EFFINGER BROS., Oldshaw, hardy flowers and Roses; Messrs. TITT & SON, Windsor, floral decorations; and the CLURY NURSERIES, Langley, a collection of Carnations.

SOUTHAMPTON ROYAL HORTICULTURAL.

JUNE 27, 28.—The summer exhibition of this society was held, in splendid weather, on these dates, in the County Cricket Ground, Southampton, which provided an excellent site for the holding of a flower show. The entries were not quite so numerous as in some former years. There was a little falling-off in the entries in the Rose classes, which were the more numerous in the prize list. The blooms staged were not large, but good in quality, and some few showed the effects of the recent hot weather. Miscellaneous plants were interesting, whilst displays of fruits and vegetables were good. The arrangements were well carried out by the secretary, Mr. Fuidge, who has held this office for 40 years.

ROSES.

The leading class for Roses was for 48 blooms, distinct. Three competitors, the 1st prize being awarded to Messrs. D. PRIOR & SONS, Colchester, for medium-sized, fresh blooms of such varieties as G. C. Waud, White Killarney, Hugh Dickson, Maman Cochet, Florence Pemberton, Lady Ursula, Mrs. John Laing, and Mme. Jules Gravereaux. 2nd, Mr. H. DREW, Longworth, Berkshire, who had slightly smaller blooms.

In the class for 12 triplets, Mr. G. PRINCE, Longworth, Berkshire, was the most successful exhibitor, staging Hugh Dickson, Avoca, J. B. Clark, Mildred Grant, White Maman Cochet, Frau K. Druschki, and Mrs. S. Crawford.

For 12 varieties of Tea or Noisette varieties, Mr. G. PRINCE was placed 1st for choice blooms of Mrs. M. Kennedy, Comtesse de Nadailac, and Mrs. E. Mawley amongst other varieties.

Mr. H. DREW was successful in the class for six Roses of any one dark variety, having well-coloured blooms of J. B. Clark.

Messrs. D. PRIOR & SONS showed the premier exhibit in the class for six Roses of light-coloured variety, having fine blooms of Frau Karl Druschki.

For a display of decorative Roses, in a space of 7 feet by 3 feet, Mr. ELISHA J. HICKS, Twyford, Berkshire, was placed 1st, with bunches of

desirable kinds pleasingly arranged. Orleans Rose, Jeanne d'Arc, and Mrs. W. Cutbush were noticeable in this exhibit. 2nd, Mr. ERNEST HICKS.

There were numerous classes for gardeners and amateurs. Seven growers competed for the "Munt" Silver Cup, offered for 18 blooms of distinct varieties, but the trophy was won easily by Dr. C. LAMPOUGH, Kirkstall, Alverstoke, with good specimens of Dean Hole, Hugh Dickson, and W. Shean. H. D. BROUGHTON, Esq., Beach Hurst, Andover (gr. Mr. W. C. Gregory), was placed 2nd.

In the class for 12 Tea or Noisette Roses, D. SEATON, Esq., Woodside Cottage, Lymington, was the most successful exhibitor.

Mixed varieties of Roses, arranged in two vases for effect, made a pleasing display. W. H. MYERS, Esq., Swannore Park, Bishop's Waltham (gr. Mr. G. Ellwood), won the 1st prize easily with an exhibit in which the Lyon Rose was a conspicuous variety. 2nd, A. J. FORT, Esq., Winchester.

Sweet Peas are an important feature at this exhibition. Messrs. Toogood, Southampton, offered prizes in a class for six bunches. F. G. RAYDORE, Esq., Woodfield, Havant (gr. Mr. G. Hoar), won the 1st prize with small, fresh examples of John Ingram, Elsie Herbert, King Edward Spencer, and Evelyn Hemus. 2nd, Mr. BEALING, Bassett, Southampton. But this decision did not meet with general approval.

In Messrs. Sutton & Sons', Messrs. James Carter & Co.'s, and Messrs. E. Webb & Sons' classes, Sir RANDOLPH BAKER, Rantown House, Blandford (gr. Mr. Usher), was quite unassailable in every case, winning the 1st prizes with large, brightly coloured blooms of such varieties as Mrs. Usher, Mrs. Hugh Dickson, Evelyn Hemus, Othello, Spencer, and Clara Curtis. Mr. H. H. LEES, Warblington Cottage, Havant, was also a prominent exhibitor in these classes, winning several prizes.

FRUIT AND VEGETABLES.

Mr. MYERS (gr. Mr. Ellwood) won the 1st prize easily in the class for two bunches of Black Hamburg Grapes.

Mrs. USSELL, New Milton (gr. Mr. Foskett), showed the best exhibit of white Grapes with bunches of Foster's Seedling.

Mrs. E. S. FARMAN, Downhams, won the 1st prize for one dish of Peaches with extra good fruits of Hale's Early.

Mr. USHER excelled in the class for Nectarines, having small, well-coloured examples.

Strawberries were very fine in quality, and numerous shown. For two dishes of these fruits, L. WALKER MUNRO, Esq., Brockenhurst (gr. Mr. Westron), won the 1st prize with superb examples of Givon's Late Profic and Bedford Champion.

Exhibits of vegetables were numerous and good, although, perhaps, not quite so numerous as in past years. Messrs. Toogood & Sons offered 10 prizes for 6 dishes. Mr. MYERS easily secured the leading award with high-class examples of Cauliflowers, Tomatoes, Potatoes, Peas, Carrots, and Onions. 2nd, Admiral Sir J. HOPKINS, Greatbridge House, Romsey (gr. Mr. Mattingley).

Mr. MYERS also won the 1st prize in Messrs. Sutton's class for six dishes of vegetables, and also in Messrs. J. Carter & Co.'s class for the same number of dishes.

Non-competitive Exhibits added much to the excellence of the show.

Mr. BURNETT, Guernsey, showed Carnations in quantity and of high quality. (Gold Medal.)

Messrs. B. LADHAMS & SON, Shirley, Southampton, arranged hardy herbaceous flowers in an attractive manner. Heucheras, Campanulas, Hemerocallis, perpetual-flowering Pinks, Gailardias, and Scabious were especially good. (Silver-gilt Medal.)

Mr. M. PRICHARD, Christchurch, contributed Kniphofias "Goldense" and "Rufus," also Delphiniums, including the variety Rev. Lascelles, a very dark blue flower, with a pure white eye. (Silver-gilt Medal.)

Messrs. Toogood & Sons, Southampton, arranged a grand display of Sweet Peas.

Messrs. KELWAY & SON, Langport, showed about 50 spikes of Delphiniums, all of high-class quality. Noticeable varieties were Lovely (mauve and blue), Monarch of All, Royal Blue, Dusky Monarch, Star of Langport, and Lemberg (a very dark purple-violet variety).

RICHMOND HORTICULTURAL.

JULY 23.—The Richmond Horticultural Society held their 37th exhibition in the Old Deer Park on the above date. This being the date of the Royal Agricultural Society's show at Norwich, and flower shows being also held at the same time so near to Richmond as Walton-on-Thames and Windsor, the show under notice suffered in consequence. Although the exhibits were not so numerous as usual, there was no falling off in quality. Despite the hot, dry season, the displays of Roses, hardy plants, Sweet Peas, and other flowers were remarkably good. A large amount of space was occupied by very fine groups of miscellaneous plants. The fruit and vegetable sections of the exhibition brought together some very meritorious exhibits. A dish of extra large berries of "Waterloo" Strawberries from Mr. BIDDULPH's garden, attracted considerable attention. It is not every garden which is capable of producing good crops of this late Strawberry, but when successfully grown there is no finer or richer-flavoured variety. A novel class was that for the best collection of salads; Mr. LASSOCK, who won the 1st prize, arranged a representative collection of fresh, well-grown saladings in a very attractive manner. As is so often the case at provincial shows, the vegetables shown by cottagers and allotment-holders were of high merit, and did not suffer by comparison with the exhibits staged by professional gardeners.

In the class for a group of plants, not to exceed 100 square feet, Sir MAX WAECHTER was placed 1st with a fine exhibit containing well-grown plants of Liliums in variety, Spiraeas, Carnations, and well-flowered Orchids; 2nd, Messrs. CARD & DENNY; 3rd, Miss LANGWORTHY, Holyport.

For a semi-circular group of plants, not to exceed 60 square feet, Mr. S. LARKIN secured the 1st prize with a tastefully-arranged exhibit consisting chiefly of tall, graceful Palms and Orchids; 2nd, Mrs. COOPER COLES, Twickenham.

Mr. H. LITTLE, Twickenham, was clearly 1st in the class for six exotic Orchids; his plants included an unusually fine specimen of Lælio-Cattleya Zephyra; 2nd, Mr. S. FIDDLEMAN, Tooting.

The best collection of six exotic Ferns, the best six foliage plants, and the best Aspidistras were shown by Mrs. VAUGHAN-ARBUCKLE, Richmond, but this exhibitor was 2nd to Mr. L. WARDE, Petersham, and Mrs. COOPER COLES in the classes for six Caladiums and six Fuchsias respectively.

Mr. G. ATKINS won the 1st prize for six tuberous-rooted Begonias, whilst Mrs. VAUGHAN-ARBUCKLE was 1st in the class for six Coleus. Mr. L. WARDE being 2nd.

Messrs. F. CANT & Co., Colchester, won the 1st prize for 48 Roses with an exceedingly fine collection of fresh blooms of good substance.

Messrs. G. & W. BURCH were placed 1st for 24 Roses, Mr. H. DREW, Longworth, being 2nd.

Messrs. CRISP & SONS had the best exhibit of 12 Roses, Mr. BURCH being 2nd and Mr. H. DREW 3rd; whilst for 12 Roses of one variety, Mr. H. DREW won the 1st prize and Messrs. F. CANT the 2nd.

HONORARY EXHIBITS.

Mr. L. R. RUSSELL, Richmond Nurseries, arranged a series of groups of stove and greenhouse plants and trees and shrubs. The outstanding plants were Codiaums (Crotons), particularly C. caudatus tortuosus, Caladiums Silver Cloud and John R. Box, and little beds of Nertera depressa, which Mr. RUSSELL grows so extraordinarily well. (Large Gold Medal.)

Mr. W. THOMPSON, Sheen Nurseries, was awarded a Silver-gilt Medal for a large group of plants.

Mr. A. C. HATCH, East Twickenham, displayed an uncommonly good group of Cacti, the plants being chiefly in flower.

Besides the two medals for groups of plants, others were awarded to Messrs. H. ECKFORD for Sweet Peas; Messrs. FROMOW & SONS, Chiswick, for Japanese Maples, and Mr. H. E. FORDHAM for a group of plants. The Gunnersbury Challenge Cup for Roses was won by Messrs. F. CANT & Co., and the Waechter Cup for fruit was awarded to Sir W. GREENWELL, Caterham.

REIGATE ROSE AND SWEET PEA.

JULY 1.—The 6th annual show of the Reigate Rose and Sweet Pea Association was held on the above date, in the grounds at The Barons, Reigate, the residence of Mr. E. H. Johnston. The exhibition was much larger than the one held last year, and favourable weather added to the success of the show, which, on the last occasion, was spoiled by a continuous downpour of rain.

Competition was keenest in the Sweet Pea classes, in which some excellent bunches were staged. Eleven competitors staged in the class for 12 bunches, and there were 13 collections in the class for 6 bunches of these flowers. The decorative classes for table decorations proved a great attraction, there being nine tables arranged with Sweet Peas and six with Roses. The challenge cup offered in the former class was awarded for a mixed arrangement of mauve, pink, and cream coloured Sweet Peas, with Sweet Pea foliage. The Challenge Bowl offered for Roses was given for an arrangement of Mme. Abel Chateau, with foliage of Rosa rubrifolia and Asparagus.

In the nurserymen's classes for exhibition Roses, Messrs. E. R. CANT & SONS, Colchester, won the Challenge Cup offered for 48 blooms, Messrs. D. PRIOR & SONS being placed 2nd, and Messrs. FRANK CANT & Co., Colchester, 3rd.

Mr. H. DREW, Oxford, was placed 1st in the class for 24 blooms of Roses, and also in that for 18 Tea or Noisette varieties.

Twelve bunches of garden Roses made a good class, Messrs. FRANK CANT & Co. winning the 1st prize with a group which included some especially good blooms of Rouge Angevine, Lady Curzon, and Gardenia.

The Rose classes for amateurs were grouped in three divisions, those growing fewer than 300 plants, those with fewer than 1,000, and the open classes. In the open classes, Mr. A. TATE won the 1st prizes in the classes for 24 varieties, and for 3 blooms each of 8 varieties. Mr. W. R. HAMMOND was placed 1st in the class for 18 blooms, and Mr. E. M. EVERSFIELD in that for 12 Tea or Noisette varieties. The Silver Medal offered for the best bloom was won by Mr. E. B. LEHMANN, with the variety Avoca.

SCOTTISH HORTICULTURAL.

JULY 4.—The monthly meeting of the above association was held in the Goid Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. Massie, the president, occupied the chair, and there was an attendance of 65 members.

Under the title of "Some Recent Additions to Our Knowledge of Trees," the secretary gave an account of the experiments in the breeding of Elms, which Dr. HENRY, of Cambridge University, had recently carried out (an abstract of which appeared in the *Gardeners' Chronicle* of April 23 and 30, 1910), and this he illustrated by means of a series of lantern slides. A discussion followed.

The exhibits included an exhibit of Roses, shown by Messrs. DICKSON & Co., Edinburgh; Begonia flowers and Potato Midlothian Early (the produce of two plants weighing 10 lbs.), from Miss BURTON, Polton; fruit of Stephanotis floribunda, shown by Messrs. JOHN FORBES, LTD., Hawick; flowers of Carnation Lady Hermione, exhibited by Messrs. TODD & Co., Edinburgh; seedling Ox-eye Daisies (Chrysanthemum Leucanthemum), shown by Mr. F. BAILLIE, Snodhouse, Liberton; a new Strawberry, named The Liberal, and Essex Star Pea, exhibited by Mr. JAMES SCARLETT, Sweethope, Musselburgh; Marguerite Mrs. F. Sander, and hybrid Pansy flower, from Messrs. JAMES GRIEVE & SONS, Edinburgh; a plant of Rhododendron grown in a dwelling-room window in Edinburgh for eight years, but now nearly suppressed by a plant of the common Heather (Calluna), which appeared as a seedling in the soil in which the Rhododendron was repotted eight years ago, exhibited by Mr. A. MACMILLAN, Edinburgh (late of Trinity Cottage); and Lathyrus rotundifolius (Drummondii), shown by the SECRETARY.

At the meeting to be held on August 1 a paper will be read on "Perpetual-flowering Carnations," by Mr. THOS. HAY, superintendent of Greenwich Park (late of Hopetoun).

The arrangements for the excursion to Manderson on August 19 were announced.

HANLEY HORTICULTURAL FETE.

JULY 5, 6.—The 15th annual horticultural fete was held in the Hanley Park, situated in the world-renowned Staffordshire Potteries, on the above dates. The entries appeared to be well up to the average, and competition was keen in nearly all the classes.

The show was well supported by visitors on the opening day, and without attempting to particularise too closely, mention must be made of the remarkably well-grown and handsome collections of fruit exhibited by J. DRAKE, Esq., Orford House, Market Rasen, and by the Duke of WESTMINSTER, Eaton Hall, Chester. The artistically-arranged plant groups found many admirers.

PLANTS (OPEN).

The group class is always a good feature at Hanley, and the high standard of excellence well maintained on the present occasion. Each of the five exhibitors occupied spaces of 300 square feet down the centre of the largest marquee, and plants in or out of bloom were permissible. Five prizes were offered, and the first three were awarded as follows:—1st, Messrs. J. CYPHER & SONS, Cheltenham; 2nd, Mr. W. A. HOLMES, Chesterfield; 3rd, Mr. W. R. MANNING, Dudley. The first four groups were constructed on practically the same principle, each one having a central bridge or arch on which were choice foliage and flowering plants surmounted by a tall Palm.

Richness of foliage and flower and artistic arrangement were the characteristic features of Messrs. CYPHER's group. The corner mounds were clothed with exceedingly well-coloured Codiums, Dracenas, Kalanchoes, and Cattleyas. In the intervening spaces Orchids, Clerodendron fallax, Kalanchoe flammea, Lilioms, Ixoras, and graceful specimens of Humea elegans over a groundwork of Aralias, Ferns, Caladiums, Alocasias, Marantas, and Strobilanthes Dyerianus were employed with good taste. The 2nd prize group was also rich, but the general effect was rather marred by the inclusion of two tall pillar Roses Hiawatha. In the 3rd prize collection Cattleyas, Odontoglossums, Phalenopsis, Thunias and Lilioms were very effective.

Messrs. CYPHER & SONS won the 1st prize in the next class for Orchids arranged, for effect on table space of 100 square feet. Ferns and foliage plants were allowed. In this group we noted excellent plants of Cattleya Gaskelliana, Vanda cerulea, Oncidium Pescatorei, Epidendrum prismatocarpum, Disa grandiflora, Laelio-Cattleya calistoglossa, L.C. Canhamiana gigantea, Bulbophyllum Lobbi, and Oncidioms.

In another class for eight Orchids, distinct, Messrs. CYPHER were again to the fore. They had splendid specimens of Vanda cerulea, Phalenopsis Rimestadiana, Cattleya gigas, Odontoglossum perculum, Laelio-Cattleya Canhamiana magnifica, and Epidendrum prismatocarpum.

In a class reserved for Westminsters and other Carnations, the Earl of HARRINGTON, Elvaston Castle, Derby (gr. Mr. J. H. Goodacre), was the only competitor. The plants showed excellent colour, and the 1st prize was well deserved.

Messrs. CYPHER again took the lead in a class for six plants in flower (Orchids excluded). They had beautiful specimens of Ixora Williamsii, I. Shawii, Allamanda nobilis, Bougainvillea glabra, Erica Cavendishiana, and Statice intermedia; 2nd, Mr. W. VAUSE.

Messrs. CYPHER & SONS were also awarded 1st prizes for (1) six foliage plants, (2) six Palms, and (3) six fine foliage plants.

A. H. MADDOCK, Esq., The Cedars, Alsager (gr. Mr. B. Smith), was successful in a class for 12 Caladiums. The plants were of medium size and well coloured.

There were five good entries in a class provided for a dozen table plants grown in pots not exceeding 6 inches. The 1st prize was gained by G. J. CROSBIE-DAWSON, Esq., May Place, Newcastle (gr. Mr. J. L. Wells), who showed nine narrow-leaved, richly-coloured Codiums, one Dracena, one Aralia, and one indifferently-coloured Pandanus Veitchii; 2nd, Mrs. MEAKIN, Darlaston Hall, Stone (gr. Mr. G. F. Goodill).

PLANTS (AMATEURS).

The 1st prize in the leading group class was won by A. H. MADDOCK, Esq., Alsager (gr. Mr. B. Smith), who had very well-grown foliage and flowering plants in great variety nicely arranged. In the 2nd prize group, which came from Mrs. SWANN, Halston Hall, Oswestry (gr. Mr. C.

Roberts), yellow-leaved Codiums were rather overdone. The 3rd award went to Mrs. MEAKIN, Darlaston Hall (gr. Mr. G. F. Goodill), who secured 1st prizes in classes for (1) six specimen stove or greenhouse plants, and (2) six Begonias.

G. J. CROSBIE-DAWSON, Esq., Newcastle (gr. Mr. J. L. Wells), took the lead in a class for six exotic Ferns, and F. E. MUNZ, Esq., Umberslade Hall, Birmingham (gr. Mr. H. S. Foster), had the best 12 table plants grown in 5-inch pots.

ROSES (OPEN).

Roses were extensively shown, but the quality was not equal to that of a year ago. On the present occasion many blooms lacked size and substance, and the oppressive heat of the tent in which they were exhibited had a disastrous effect upon them.

There were five exhibits in the leading class, which was for 72 blooms, distinct. The 1st prize of £10 was won by Messrs. HARKNESS & CO., Hitchin, whose best flowers were Duke of Wellington, Mrs. Stuart Clark, Earl of Dufferin, Lyon Rose, Mrs. Myles Kennedy, J. B. Clark, Madame M. Soupert, Mrs. Theodore Roosevelt, and Her Majesty. Messrs. ALEX. DICKSON & SONS, Newtownards, who were placed 2nd, showed even-sized blooms of Hugh Dickson, Mairie, Duc de Rohan, Her Majesty, and Mildred Grant.

The last-named exhibitors were placed 1st in the next class which was for 48 blooms, distinct. 2nd, Mr. W. H. FRETTEINGHAM, Nottingham.

In a class for 36 varieties, three blooms of each, Messrs. HARKNESS & CO. were awarded 1st prize. They had the following varieties in good condition: Hugh Dickson, White Maman Cochet, Mrs. W. J. Grant, Mrs. Stuart Clark, and Mrs. John Laing. 2nd, Messrs. ALEX. DICKSON & SONS.

The best 12 varieties, distinct, introduced during the years 1909-10-11 came from Messrs. ALEX. DICKSON & SONS. The varieties exhibited were: Jonkheer J. L. Mock, Lady Barham, Otto Von Bismarck, Ethel Malcolm, George Reimers, Mrs. Cornwallis West, La Galisierre, Mrs. Foley Hobbs, Duchess of Westminster, Mabel Derw, Bertha Gaulis, and Nita Weldon. 2nd, Messrs. HARKNESS & CO. 3rd, Messrs. PERKINS & SONS, Coventry.

Messrs. ALEX. DICKSON & SONS won 1st prizes in classes for (1) 24 Hybrid Teas, distinct varieties, (2) 24 Tea or Noisette varieties, and (3) 12 white Roses (one variety).

The Lyon Rose exhibited by W. T. MATTOCK, Oxford, was the best yellow flowered Rose. Out of eight competitors Mr. W. H. FRETTEINGHAM led in a class for 12 pink-flowered Roses, with Mrs. John Laing in good condition. The best red or crimson variety was Hugh Dickson, shown by KING'S ACRE NURSERIES, Hereford.

In a class provided for dinner tables, 8 feet by 4 feet, decorated with Roses, there were seven exhibits. The 1st prize of £4 was secured by Mr. W. T. MATTOCK, Oxford.

MISCELLANEOUS CUT FLOWERS.

There were five splendid exhibits in a class for a collection of hardy perennials (shrubs, annuals, duplicate or mixed bunches not allowed) arranged on a table space (four tiers) of 16 feet by 4 feet. The 1st prize was awarded to Messrs. HARKNESS & CO., Leeming Bar, Bedale, who had excellent bunches of Gaillardias, Lilioms, Heucheras, Campanulas, Galegas, Iceland Poppies, Delphiniums, &c. 2nd, Messrs. G. GIBSON & CO., Bedale.

Owing to a misinterpretation in the reading of the schedule, Messrs. W. ARTINDALE & SON, Sheffield, were disqualified for including three coloured forms of Alstroemeria chilensis in one bunch in their exhibit. This was a matter for regret, because the collection was a meritorious one, and in the opinion of the judges was the best of the set. A special prize was awarded to Messrs. ARTINDALE for their splendid exhibit.

Messrs. LEWIS & SPROSON, Stoke-on-Trent, were awarded the 1st prize of £15 for floral designs arranged on a space of 15 feet by 6 feet.

In a class reserved for dinner tables, 8 feet by 4 feet, decorated with flowers (Roses excluded) there were eight entries. Plants in pots were allowed. The 1st prize was won by Mr. A. J. BLAIR, Beech Hill, Cheddleton, whose table was beautifully decorated with pink Carnations relieved with sprays of Gypsophila, Codium leaves, and Asparagus. 2nd, Messrs. LEWIS & SPROSON.

FRUIT AND VEGETABLES.

The principal class in this section was one for a dessert table, 10 feet by 4 feet 6 inches, decorated with flowers and foliage (Orchids excluded). Not more than 14 dishes of fruit were allowed. The 1st prize was won by J. DRAKE, Esq., Orford House, Market Rasen (gr. Mr. W. Parker), whose collection was of a very high order of merit. It included Taunton Hero and Countess Melons; Lord Napier and Newton Nectarines; Dr. Hogg and Royal George Peaches; Lady Sudeley and Beauty of Bath Apples; Brown Turkey Fig; Leader Strawberry; and Muscat of Alexandria, Madresfield Court, Black Hamburgh, and Buckland Sweetwater Grapes. The decorations consisted of Carnations, Francoas, Heucheras, and Sweet Peas. The 2nd prize was gained by the Earl of HARRINGTON, Elvaston Castle, Derby (gr. Mr. J. H. Goodacre), who had good dishes of Royal George and Prince of Wales Peaches; Golden Gage Plum; and Black Hamburgh Grapes. The decorations were a very pretty combination of pink Carnations and white Francoas. 3rd, Lady BEAUMONT, Carlton Towers, Yorks. (gr. Mr. W. Nicholls).

Collection of 14 dishes. In this class not fewer than eight kinds were required, and not more than two varieties of a kind. Black and white Grapes (two bunches of each) were to be included and arranged on separate tables, measuring 6 feet by 4 feet. As in the last class floral decorations were allowed, but prizes for these were awarded separately. There were four exhibits, and the best of these came from the Duke of WESTMINSTER, Eaton Hall, Chester (gr. Mr. N. F. Barnes), who had unusually good specimens of Elruge and Lord Napier Nectarines, Transparent Gage Plum, Royal George Peach, Worcester Pearmain and Lady Sudeley Apples, Williams' Bon Chretien Pear, Eaton Seedling Melon, Foster's Seedling, Muscat of Alexandria, Madresfield Court, and Black Hamburgh Grapes. This exhibitor was awarded the 2nd prize for the floral decorations. J. DRAKE, Esq., Market Rasen (gr. Mr. W. Parker), who secured the 2nd prize, showed grand dishes of Lady Sudeley Apple, Leader Strawberry, Taunton Hero Melon, Muscat of Alexandria and Black Hamburgh Grapes. The 3rd award fell to the Earl of HARRINGTON (gr. Mr. J. H. Goodacre), who was placed 1st for decorations, which consisted entirely of Odontoglossums, Cattleyas and Asparagus.

Only two exhibits were placed before the judges in a smaller class for six dishes, distinct kinds. 1st, Lord BAGOT, Blithfield Hall, Rugby (gr. Mr. T. Banerman), who showed Black Hamburgh Grapes, Royal George Peach, Downton Nectarine and Brown Turkey Fig, in splendid condition. 2nd, Mr. N. BUXTON, Geding.

In a class for four bunches of Grapes (two black and two white), the Duke of WESTMINSTER (gr. Mr. N. F. Barnes) was placed 1st, with large, handsome well-berried bunches of Muscat of Alexandria and Madresfield Court. 2nd, the Earl of HARRINGTON (gr. Mr. J. H. Goodacre). The winning pair of bunches of Black Hamburgh Grapes were shown by the last-named exhibitor. Mr. N. F. BARNES was a very good 2nd.

In a class for two bunches of black Grapes (Black Hamburgh excluded) there were five splendid entries. 1st, Lady BEAUMONT (gr. Mr. W. Nicholls) for large, well-finished bunches of Madresfield Court. Mr. N. F. BARNES was awarded the 2nd prize for his handsome bunches of Gros Maroc.

J. DRAKE, Esq. (gr. Mr. W. Nicholls) won first prizes in classes provided for (1) two bunches of White Muscat Grapes and (2) two bunches of any white Grapes (Muscats excluded). The Duke of WESTMINSTER was placed 2nd in each class.

Lord BAGOT showed the best dish of six Peaches. The variety exhibited was Royal George. 2nd, Lady BEAUMONT (gr. Mr. W. Nicholls).

The last-named exhibitor led in the class for six Nectarines, showing large, well-coloured fruits of Lord Napier.

The two best dishes of Nectarines, as well as the winning dish of Figs, came from Lord BAGOT. F. E. MUNZ, Esq., Umberslade Hall, Birmingham (gr. Mr. H. S. Foster) showed the best dish of Strawberries.

Messrs. Sutton & Sons offered prizes for six distinct kinds of vegetables, and of the four exhibited in one from Lady Beaumont (gr. Mr. W. Nicholls) was awarded the 1st prize. 2nd, F. T. MUNTZ, Esq. (gr. Mr. H. S. Foster).

Messrs. Webb & Sons also offered prizes for six distinct kinds. 1st, F. E. MUNTZ, Esq. (gr. Mr. H. S. Foster). 2nd, Lady Beaumont (gr. Mr. W. Nicholls).

The Society's class was for nine distinct kinds, and there were seven good entries. 1st, Lady Beaumont (gr. Mr. W. Nicholls). 2nd, F. E. MUNTZ, Esq. (gr. Mr. H. S. Foster).

HONORARY EXHIBITS.

A special award of a Silver Challenge Cup, value £10 10s., and a Gold Medal, offered for the best trade exhibit, was won by Messrs. Sutton & Sons, Reading, for an extensive display of choice fruit, flowers and vegetables.

Messrs. Aldersey & Marsden, Tilston, Malpas, showed 60 varieties of Sweet Peas, together with cut sprays of hardy shrubs and hardy herbaceous flowers. (Silver Medal.)

Mr. William Lowe, Beeston, occupied 40 feet length of staging, on which was displayed about 200 varieties of cut Roses. (Gold Medal.)

Messrs. Dicksons, Chester, had Roses and hardy herbaceous flowers in great variety. (Silver Medal.)

Mr. R. Bolton, Warton, Carnforth, contributed a large collection of Sweet Peas. (Gold Medal.)

Mr. H. N. Ellison, West Bromwich, showed Ferns and clipped shrubs. (Gold Medal.)

Messrs. W. Artindale & Son, Sheffield, occupied space 130 feet long by 4 feet wide with a comprehensive exhibit of hardy herbaceous flowers, Roses, bog and aquatic plants. (Gold Medal.)

Mr. H. Eckford, Wem, showed Sweet Peas. (Silver Medal.)

Messrs. Jarman & Co., Chard, contributed Centaureas, Zonal Pelargoniums, Carnations and Roses. (Silver Medal.)

Messrs. Seagrave & Co., Sheffield, Mr. W. H. Pattison, Shrewsbury, and Mr. S. R. Compson, Macclesfield, sent Violas. (Silver Medals.)

NATIONAL ROSE.

SUMMER EXHIBITION.

JULY 7.—The 35th summer exhibition of this Society was held on the above date in the Botanic Gardens, Regent's Park. The exhibition was held in a large canvas roofed building, having an area of nearly 50,000 square feet. It accommodated 20 tables, each 140 feet long and 3 feet broad, and ample room was allowed between the tables for the inspection of the exhibits. The exhibition was one of the largest and most important Rose shows ever held; the entries numbered more than 1,000, whilst the Roses were of good quality, if rather small; the weather was very hot, but this only seemed to cause a larger attendance than usual.

The advantages of a large building were apparent soon in the day, for the blooms in an adjoining tent began to wither, whilst those in the principal building continued to withstand the great heat surprisingly well. It was instructive to note the development of the flowers; the bud of the morning was a fully-opened Rose at noon, by which time the blooms which were perfect when staged had become full-blown. The successful exhibitors were those who had anticipated this, and had selected their blooms accordingly. Fine blooms of Lyon Rose were staged in great numbers. At the same time some of the older favourites held their own, and we frequently noted such varieties as Her Majesty, A. K. Williams, and Niphetos (immense blooms) in the winning stands. That difficult Rose Bessie Brown was also splendidly shown. The new varieties were again placed in a special tent, and attracted an immense number of visitors. Two new varieties, both H.T.s, shown by Mr. Hugh Dickson, Belfast, received the Society's Gold Medal, two other new Roses were awarded Silver-gilt Medals, and six obtained Cards of Commendation. Much of the success of the exhibition is due to the hard-working, ever-courteous secretary, Mr. Edward Mawley, and his assistants.

NURSERYMEN'S CLASSES.

The winner of the Challenge Trophy in the premier class for nurserymen, which requires 72 blooms of distinct varieties, may very properly be termed the champion Rose grower of the year. On this occasion the winner was Mr. HUGH DICKSON, Belfast, Messrs. A. DICKSON & SONS, LTD., Newtownards, Ireland, who were the winners last year, being a close 2nd. The premier exhibit contained immense, well-coloured blooms of fine form. Varieties that were particularly noticeable included Mrs. Stewart Clark, which also received the Silver Medal offered for the best Tea Rose in the show, Leslie Holland (of a rich colour), Suzanne Marie Rodocanachi, Mrs. Geo. Preston, King George V. (a dark and velvety bloom), Jonkheer, J. L. Mock, Chas. K. Douglas, Queen of Spain (an almost perfect bloom of pale, flesh-pink colour), and Gustave Piganeau. The best blooms in the 2nd prize group were Mrs. G. W. Kershaw, Geo. Dickson, Chas. Darwin, Caroline Testout, Conway Jones, Duchess of Westminster, Rev. G. Henslow, and Earl Warwick; 3rd, Messrs. R. HARKNESS & CO., Hitchin; 4th, Messrs. D. PRIOR & SON, Colchester.

The class for 40 distinct varieties of Roses, three blooms of each variety, presented a wonderful sight; each exhibitor had to stage five boxes of Roses each containing 24 blooms. The whole of this immense collection was of a surprising degree of excellence, and it became a matter of difficulty to select particular blooms for notice. The chief award was given to Messrs. B. R. CANT & SONS, Colchester, who last year won the 2nd prize in this class. The blooms which attracted us most were Her Majesty (as fine as we have ever seen this grand variety), O. Terks, Mildred, Dean Hole, Ulrich Brunner, Earl of Warwick, and Avoca. 2nd, Messrs. R. HARKNESS & CO., whose example of Hugh Dickson was awarded the Silver Medal offered for the best H.P. bloom in the show. Others of outstanding merit were Claudius, Mildred Grant, Yvonne Vacherot, Duchesse de Morny, Alfred Colomb, and Lady Moyra Beauclerc. 3rd, Messrs. A. DICKSON & SONS.

The China Trophy for 48 blooms, distinct, also attracted very keen competition, and some splendid Roses were shown. Mr. G. PRINCE, Longworth, Faringdon, was awarded the 1st prize for a fine collection of rich blooms, such as Lady Moyra Beauclerc, White Maman Cochet, Avoca, Ulrich Brunner (an immense bloom), and His Majesty. 2nd, Mr. W. H. FRETtingham, Beeston Nurseries, Nottingham, with slightly smaller blooms, Mrs. J. Laing, Charles Lefebvre, and Bessie Brown being the best. 3rd, Messrs. G. & W. H. BURCH, the Rose Nurseries, Peterborough. 4th, Messrs. J. BURRELL, Cambridge.

In the class for 24 blooms, distinct, Mr. W. R. CHAPLIN, Waltham Cross, received the 1st prize for an exceedingly good exhibit. His best blooms were of such standard varieties as Her Majesty, J. B. Clark, and A. K. Williams. 2nd, Mr. E. J. HICKS, Twyford. 3rd, Mr. JOHN MATTOCK, Headington, Oxford.

The class requiring six distinct varieties in triples resulted in a superb competition, and contained the finest blooms in the show. The 1st prize collection, shown by Mr. HUGH DICKSON, was especially fine. We noted Hugh Dickson, Countess of Caledon, Mrs. David McKee, Mrs. Hugh Dickson, Caroline Testout, Leslie Holland, William Shean, and Mrs. Stewart Clark, all immense blooms of perfect form and colouring. 2nd, Messrs. G. & W. H. BURCH. 3rd, Messrs. PERKINS & SONS, Coventry.

TEA AND NOISETTE ROSES.

Here again the Roses shown were excellent and the competition good, last year's winners being again placed in the same order. The D'Ombrain Cup, offered for 24 blooms, distinct, was awarded to Mr. G. PRINCE, whose best blooms were Comtesse de Nadaillac, Madame Jean Dupuy, Innocente Pirola, Bridesmaid, and Souvenir de Pierre Notting. 2nd, Mr. HENRY DREW, Longworth, Faringdon, whose stand contained an immense flower of the variety Niphetos. 3rd, Messrs. B. R. CANT & SONS, Colchester.

Messrs. CHAPMAN & COLLIN, Leicester, were placed 1st for 12 blooms, distinct; Messrs. J. JEFFRIES & SON, Cirencester, being 2nd; and Messrs. W. & J. BROWN, Witham, 3rd.

The class for 16 distinct varieties, shown as triples, furnished a much better display than

the previous one. Mr. G. PRINCE led easily with two stands of excellent blooms, the best of which, Madame Jules Gravereaux, received the Silver Medal offered for the best Tea Rose shown by a nurseryman. 2nd, Mr. HY. DREW. 3rd, Messrs. W. CRISP & SONS, West Bergholt, Colchester.

The President's prize, offered for nine baskets of cut blooms of perpetual flowering Roses, was awarded to Mr. EASTLEA, Eastwood, Essex, for an excellent contribution. 2nd, Mr. J. MATTOCK.

In the class for five baskets of Roses, Messrs. HUGH DICKSON excelled easily.

VASE CLASSES.

These furnished exhibits of greater attraction than the preceding classes. The leading vases were nicely arranged, and the seven blooms required for each of the 18 vases are sufficient to make a good display. Messrs. J. JEFFRIES & SONS, Cirencester, were awarded the 1st prize, having splendid vases of Aaron Ward, General M'Arthur, and Elizabeth Barnes. 2nd, Mr. J. BARROW, Oadby, Leicester.

The 1st prize in the smaller class for nine vases was won by Mr. CHAS. TURNER, Slough. 2nd, Messrs. W. SPOONER & SON, Woking.

There was a new class for 16 distinct varieties of 24 blooms arranged in lines in regulation boxes. Mr. E. J. HICKS, Twyford, Berkshire, was easily 1st with a fine set of blooms.

DECORATIVE ROSES.

The "A. C. Turner" Cup is offered for the best collection of 36 distinct varieties, not fewer than three nor more than 12 trusses of each variety. Winning this 1st prize constitutes the Championship amongst nurserymen for this class of Roses. Mr. J. MATTOCK, Oxford, was awarded the Cup for a splendid collection of such decorative varieties as Irish Elegance, Irish Glory, Marquise de Sinety, Nerarajah, Mr. A. Tate, and Lady Curzon; 2nd, Mr. G. PRINCE; 3rd, Messrs. G. PAUL & SONS.

In similar classes of smaller numbers, Messrs. W. SPOONER (twice), Mr. G. PRINCE, and Mr. J. FIGG, Royston, Herts, for new Roses, won 1st prize.

Messrs. F. CANT & Co., Colchester, were awarded the 1st prize for Wichuriana Roses.

GROUPS OF ROSES.

The schedule permits the use of any kind of Rose in these classes, either as growing plants or cut flowers, but the latter must not be displayed in exhibition boxes. As usual Messrs. G. PAUL & SONS, Cheshunt, and Messrs. HOBBIES, LTD., Dereham, Norfolk, were the only exhibitors, and they were awarded the 1st and 2nd prizes in the order named. The groups were beautifully arranged, the methods in each case being very similar; pillar varieties were extensively employed, Rubin, American Pillar, Delight, and Père André in the winning exhibit were very fine. Other good Roses were Rev. A. Cheales, Butterfly (a seedling), Pharisæe, George Laing Paul, Frau Karl Druschki (a few widely-expanded blooms of this variety showing their stamens were very charming), Capt. Hayward, and Liberty. In Messrs. HOBBIES' group the variety Juliet attracted much attention; the visitors who sought for perfume were rewarded, for this novelty is sweetly scented. Le Progrès, Duchess of Wellington, Harry Kirk, and a mass of the Lyon Rose were very good in this exhibit.

The groups of Roses arranged on staging measuring 100 square feet were very imposing. In this class the Gold Medal was awarded to Messrs. W. & J. BROWN, Peterborough, for a magnificent collection. Tall pillars of cluster Roses towered up towards the roof of the building, and bold masses of tastefully-arranged show blooms filled the space allowed. This group contained the best blooms of Lyon Rose in the show. Tall stands furnished with Hugh Dickson, Legion d'Honneur, and C. J. Faure were very fine; 2nd, Mr. F. H. BRADLEY, Peterborough. This was another charming display, lightly and prettily arranged. Long sprays of cluster Roses were trained against a wooden trellis at the back, and well-arranged Bamboo stands filled with Roses were placed along the centre of the group. 3rd, Mr. J. MATTOCK, Oxford.

OPEN CLASSES.

In the colour classes open to amateurs and nurserymen alike, the finest crimson Rose was again J. B. Clark, but this year shown by Mr.

BENTLEY, the Rose Nurseries, Leicester: the best white or yellow Rose was LYON ROSE, shown by Messrs. MCGREY & SON, Portadown, Ireland, but the petals seemed far away from any yellow shade of colour. The finest Rose of any other shade than those mentioned was the variety Theodore Roosevelt, shown by Mr. W. BENTLEY. In these classes the competition was very keen.

The best nine blooms of a new Rose were shown by Mr. HUGH DICKSON, and Messrs. ALEX. DICKSON were awarded the 1st prize for the best 12 blooms of new Roses.

AMATEUR'S CLASSES.

As in the classes for trade growers the competition amongst amateurs was very keen, and many excellent blooms were staged. The 1st prize in the champion class for 36 blooms, distinct, open to amateurs of every degree, was won by E. B. LINDSELL, Esq., Hitchin, who was also the winner last year. Especially fine in a very meritorious stand were Comtesse de Naidalac and Dean Hole. 2nd, A. TATE, Esq., Leatherhead. 3rd, W. BOYES, Esq., Driffield, Yorkshire.

Mr. LINDSELL also repeated his success of last year in the class for 24 blooms, distinct, with a well-nigh perfect stand of flowers; 2nd, J. PARK, Esq., Aiskers Mill, Bedale; 3rd, F. DENNISON, Esq., Leamington.

In the classes for growers of fewer than 3,000 plants, the "Hobbes" Cup was offered for 24 blooms, distinct. It was won by Mr. H. R. DARLINGTON, Potters Bar, with a fine stand of blooms, 2nd, Mr. E. M. EVERSFIELD, Horsham.

The Christy Cup was offered in competition to growers of fewer than 2,000 plants for 24 blooms, distinct. It was awarded to Mr. W. O. TIMES, Hitchin; 2nd, Mr. D. H. H. CHURCH, Warrington.

There were also competitions for growers of fewer than 1,000 and 750 plants. The 1st prizes for 12 blooms, distinct, in these classes were won by Mr. C. GERRERA PIERCE, Eddich, and Mrs. L. C. HUNT, William Rectory, Hitchin, respectively.

The Challenge Cup, offered for the best six blooms, distinct, grown in the metropolitan area, was won by Mr. W. E. MARTIN, North Farnham, whilst the piece of plate offered for 18 varieties of decorative Roses was awarded to Mr. A. TATE, Leatherhead.

DECORATIVE CLASSES.

A tent was set apart for the classes devoted to the decoration of dinner tables, single vases, &c., by ladies. This was a very interesting feature of the show, and many of the arrangements were very tasteful. Miss F. MOLYNEUX, Swanmore Farm, Bishop's Waltham, again won the 1st prize in the class for a dinner-table decoration of Roses, having a very charming combination of Lyon Rose and Irish Elegance.

GOLD MEDAL ROSES.

The Society's Gold Medal was awarded to the following new Roses:

Mrs. Sam Rose.—A deep saffron-yellow hybrid Tea Rose, which stands up well on stout stalks and possesses good healthy foliage. Shown by Mr. HUGH DICKSON.

Mrs. R. Draper.—A splendid Rose, which may best be described as a glorified La France. Shown by Mr. HUGH DICKSON.

Silver-gilt Medals were awarded to the following:—

Souvenir of Portland Oregon, a rich red H.T. Rose, sweetly scented, and well furnished with good stalks and healthy foliage, shown by Mr. HUGH DICKSON; *Dunlop*, a perpetual flowering yellow cluster Rose. A bunch of this Rose was included in the basket presented by the Society to Queen Mary (see fig. 192, p. 423, vol. xlix.), shown by Rev. J. H. PEMBERTON.

Cards of Commendation were awarded to the following:—

Sunburst.—An apricot-shaded Rose with extra long stems. A two-year-old plant also shown indicated that the plant is liable to mildew. Shown by Mr. G. BECKWITH. *Coronation*.—A soft pink coloured H.P. Rose reminiscent of Mr. Macarthur. Shown by Mr. HUGH DICKSON. *Ethel*.—A hybrid Wichuriana Rose of a pleasing shade of pink fading to nearly white in the "eye." From Mr. CHAS. TURNER, Slough. *Mrs. Muir Maclean*.—A brightly-coloured H.T. Rose which, unfortunately, has no perfume. Shown by Messrs. S. MCGREY & SON, British Queen.

A white H.T. variety of good form from the same firm. *Nancy Williams*.—Another good H.T. Rose of La France type. From Messrs. MCGREY & SON.

Amongst the new seedling Roses which did not receive any official recognition Mrs. Geo. Shawyer, Mrs. Chas. Reed, and Lady Barham (a large soft pink Rose) were much admired.

PREMIER BLOOMS.

Nurserymen.—H.T., Mrs. Stewart Clark, shown by Messrs. HUGH DICKSON; H.P., Hugh Dickson, by Messrs. HARKNESS & Co.; T., Mme. Jules Graveaux, by Mr. GEORGE PRINCE.

Amateurs.—H.P., Frau Karl Druschki, shown by Rev. J. H. PEMBERTON; T., White Maman Cochet, by Mrs. AITCHISON; H.T., Avoca, by E. B. LEHMANN, Esq.

NATIONAL SWEET PEA.

JULY 11, 12.—The annual exhibition of the National Sweet Pea Society was held on Tuesday and Wednesday last in the Royal Horticultural Hall, Vincent Square, Westminster. The sun shone brilliantly on both days, the weather being very hot, but the atmosphere inside the building was not so oppressively close as in the streets, and the flowers remained remarkably fresh in the circumstances. The Sweet Pea provides a splendid subject for exhibitions, and the show was one of the prettiest floral displays we have observed, the interior of the Hall being a blaze of colour from end to end. Every part of the spacious building was filled with exhibits; indeed, the entries were so numerous that the nurserymen's displays were restricted to a uniform space of 12 feet by 3 feet. These were arranged around the walls, the different styles of staging producing charming effects; some arranged their blooms in tall columns, others in vases and baskets, several had canopies of flowers, more than one arranged beautiful festoons and hanging baskets, whilst others set their choicest blooms in vases beneath bowers. In order to make the Hall as attractive as possible, the honorary secretary, Mr. C. H. CURTIS decorated the balcony over the clock with posies of Sweet Peas relieved with greenery. The schedule embraced 44 classes, and these were contested by 150 exhibitors, who staged between them 2,500 bunches, representing 820 separate exhibits. Coming to the details of the show, it will rank as the best of the series; the quality of the flowers was up to the average, although not exceptional; no outstanding novelty was forthcoming, the older varieties well holding their own, and the best flowers in the show were grown in Ireland. The number of challenge cups and other trophies which the Society is enabled to offer in the various classes is remarkable, the 1st prize in almost all the principal classes including either a cup or piece of plate. These were arranged in the centre of the exhibition, in company with those varieties which have been awarded the Society's Certificate of Merit at the trials this year at the Times Experimental Station.

The first division in the schedule embraces some eight classes, from which traders are excluded, and the first of these is known as the Sutton Cup Class, a silver cup valued at 15 guineas being presented by Messrs. Sutton & Sons. The schedules required 21 bunches, of distinct varieties, to be selected from a list recommended by the Floral Committee. There were only three exhibits forthcoming, and much the best collection was shown by Sir RANDOLPH BAKER, Bart., Ransdon, Blandford (gr. Mr. A. E. Usher). The following varieties were particularly noteworthy:—Masterpiece, Mrs. Ireland, King Edward (Spencer), Princess Victoria, Clara Curtis, J. Ingram, Mrs. H. Dickson, E. Norton (Spencer), Helen Lewis, and Nubian. The 2nd prize was awarded to A. W. STIRLING, Esq., Holme Lea, Goring-on-Thames (gr. Mr. A. Moring); 3rd, Sir THOS. HESKETH, Bart., Towcester (gr. Mr. G. F. Hallett), whose flowers were spoiled in effect by too short stalks. Mr. STIRLING showed a fine vase of King Edward (Spencer).

The second class was for 24 bunches of distinct varieties, and five competed for the Society's Silver-gilt Medal, which, with a sum of money, formed the 1st prize. This proved a good competition, some excellent flowers being staged, those in the 1st prize collection being a splendid lot, bright, large, and fresh in appearance, with extra long stalks, and shown to greater advantage by placing them well apart in the bunches. The

exhibitor was again Sir RANDOLPH BAKER, and not a weak vase was seen. His best varieties were Mrs. H. Dickson, Tennant (Spencer) (one of the finest of the blue shades), Etta Dyke (peerless amongst the white kinds), Countess Spencer, Sunproof Crimson, Bertie Usher (with marbling of blue on lighter blue), Mrs. Hardcastle Sykes, Stirling Stent (the finest orange-coloured Sweet Pea, but with a bad reputation for sporting), Constance Oliver, and Marjorie Linzee. The 2nd prize was awarded to J. T. TUBB, Esq., Oakbank, Sevenoaks, for smaller but very refined flowers, those of a pink shade being delightfully pretty; 3rd, Rt. Hon. S. G. O. TREVELYAN, Bart., Wallington Hall, Cambridgeshire (gr. Mr. E. Keith).

There was general good quality throughout the whole of the five exhibits staged in the "Henry Eckford Memorial Class" for 12 bunches, distinct. The premier blossoms, shown by E. G. MOCATTA, Esq., Woburn Place, Addlestone (gr. Mr. Thos. Stevenson) were as near perfection as possible, but the stems were rather short. Great vigour was seen in the stems and petals. Nubian Marjorie Linzee, Princess Victoria, Anglian Pink (a fine Sweet Pea showing orange in the standard), Elsie Herbert, Queen of Norway (a good blue variety), Maud Holmes, and Anglian Blue were some of the more noteworthy. 2nd, Sir RANDOLPH BAKER, Mrs. R. Hallam, Clara Curtis, and Stirling Stent being the pick in this group; and 3rd, A. W. STIRLING, Esq. (gr. Mr. A. Moring).

A special class was provided to commemorate the Coronation of King George, and was known as the Coronation Class. It was for 12 bunches of Sweet Peas with waved standards, distinct, to represent 12 colours. This was an exceptionally well-contested class, and brought some of the finest Sweet Peas in the show, those in the 1st prize exhibit, shown by Mr. E. COWDY, Greenhall, Loughgall, Co. Armagh, being the subject of general comment. All his varieties were good, including Countess Spencer, Clara Curtis, Mrs. Hardcastle Sykes, Edna Unwin (a magnificent Pea as shown by this exhibitor), Elsie Herbert (also a noteworthy variety), Tennant Spencer, John Ingram, and Flora Norton. The 2nd prize was awarded to Mr. TOM JONES, Ruabon, a well-known exhibitor, who showed, as usual, high-class flowers of well-known varieties, but eclipsed on this occasion by a newcomer. A vase of the white Etta Dyke was grand, and others of merit were Dazzler (a fine reddish-scarlet flower), Clara Curtis, Menie Christie, Princess Victoria, John Ingram, and Elsie Herbert.

The Breadmore Challenge Cup was offered for the best exhibit of 12 bunches distinct, shown by cultivators who do not employ more than one gardener. There were five good exhibits. The 1st prize was won by Mr. COWDY, who again exhibited excellent flowers, Elsie Herbert, Marjorie Linzee, Art Spencer, Thos. Unwin, Sunproof Crimson, Asta Ohn, and Clara Curtis being splendidly shown. The largest and boldest flowers were awarded the 2nd prize, the exhibitor being R. P. BROOK, Esq., Rosehill, Par Station (gr. Mr. W. H. Prophet), the varieties being similar to those already mentioned.

Mr. BROOK excelled in the class for six bunches, distinct, showing such excellent varieties as Mrs. Hardcastle Sykes, Mrs. Chas. Foster, and George Herbert; 2nd, Mr. W. H. RAWNSLEY, Well Vale, Alford (gr. Mr. T. Vickers).

There were several blank spaces in the tabling allotted to Class 7, which was for three bunches of pink or cream-pink varieties with waved standards; but six exhibits furnished excellent vases, Mrs. Henry Bell, Constance Oliver, and Countess Spencer, in the winning collection, shown by Mr. R. B. BROOKS, Rosehill, Par Station (gr. Mr. W. H. Prophet), being especially good. Mr. MOCATTA was placed 2nd with Mrs. Hardcastle Sykes, Olive Ruffell, and Countess Spencer.

Nothing exceptional was seen in the class for three bunches of new Sweet Peas, distinct, Mr. J. E. PHILLIPS, Malpas (gr. Mr. W. Davies), being given the place of honour for Mrs. R. Hallam, Chas. Foster, and Lancashire (a pretty shade of pink, showing yellow at the base).

CLASSES OPEN TO ALL.

The classification class constituted the first in this section, and was for 21 varieties, to include not more than one variety of any colour enumerated in the Society's classification list.

There were only two entries, the 1st prize being awarded to **MR. R. BAKER**. **MR. H. TIGWELL**, Greenford, was awarded the 2nd prize.

Messrs. Nutting & Sons offered prizes in a class for 12 bunches, distinct, and 10 completed, affording a keen competition. **MR. T. G. BEALING**, Burgess Street Nurseries, Bassett, was placed 1st for a collection of good average merit, the finer varieties being Mrs. Hardcastle Sykes, Maud Holmes, and Tennant Spencer. 2nd, **E. OTTER**, Esq., Stanhope Park, Greenford (gr. **MR. F. FAIRBAIN**).

The best bunch of new Sweet Peas, of one variety only, was **Bertha Massey**, a mauve-purple flower, showing a trace of pink, the exhibitor being **MR. E. MOCATTA**, Bertrand Deal, a variety somewhat similar, but a little deeper in tone, was awarded the 2nd prize, and **Thomas Stevenson**, an orange-coloured variety, the 3rd. The prizes were presented by **MR. J. AGATE**.

The best bunch of two varieties of Sweet Peas was shown by **MR. BROOK**, who selected **Paradise Ivory** and **Nancy Perkins**. **Paradise Ivory** and **Audrey Crier**, shown by **MR. RAWNSLEY**, were placed 2nd. There were no fewer than 17 exhibits, so that the contest was a keen one.

Competition was not so good in the class for three bunches, distinct, selected from certain specified varieties, the prizes being offered by Messrs. E. W. King & Co. **SIR RANDOLPH BAKER** excelled with fine flowers of **Anglian Pink**, **Anglian Orange**, and **Queen Mary**.

The "E. W. King" Challenge Cup for 12 bunches of Sweet Peas, distinct, was won by **MR. BROOKE** (gr. **MR. PROPHET**), there being 15 competitors. The group included splendid bunches of **Tom Bolton** (a fine dark variety), **Etta Dyke**, **Mrs. H. DICKSON**, **King Edward Spencer**, **Asta Ohn** and **Andrew Ireland**. 2nd **W. H. RAWNSLEY**, Esq., Oxford (gr. **MR. S. VICKERS**).

The "B. Purpee" Challenge Cup and Gold Medal of the Society formed the 1st prize in the class for a display of Sweet Peas, arranged on a table measuring 8 feet by 3 feet. There were four exhibits, **MR. CHARLES BREADMORE**, Winchester, being placed 1st, with splendid flowers of such beautiful sorts as **Marjorie Linzee**, **Aurora Spencer** (a pretty pink marbling on white); **Dazzler** (the orange sheen on the standard is very beautiful), **Elsie Herbert** and **Stirling Stent**. 2nd **MR. JAS. BOX**, Lindfield, Sussex.

CLASSES FOR SPECIFIED VARIETIES.

SIR RANDOLPH BAKER won the 1st prize for (1) six bunches of Sweet Peas, distinct, selected from **Nora Unwin**, **Nettie Jenkins**, **Mrs. R. Hallam**, **Glady's Burt**, **Eric Harvey**, **Freda Unwin**, **Mrs. W. J. Unwin**, **Edna Unwin**, **Douglas Unwin**, **Doris Burt**, **Clara Curtis** and **Arthur Unwin** (the prizes in this class were given by **MR. W. J. UNWIN**); (2) six bunches of Sweet Peas, distinct, to include the varieties **Sunproof King**, **Blue Bell** and **Improved Dudley Lees** (the prizes in this class were presented by Messrs. S. Bide & Sons, Ltd.); (3) four bunches of Sweet Peas, distinct, to consist of one bunch each of **Premier** or **Improved George Stark**, **Hercules**, **Lord Northcliffe**, and **Emmie Latham** (the prizes in this class were presented by Messrs. G. Stark & Son); (4) four bunches of Sweet Peas, distinct, to be selected from the varieties **Scarlet Monarch**, **Bertrand Deal**, **Empress Winsome**, **Colleen**, **Giant Cream Waved**, **Winifred Deal** and **Queenie** (the prizes in this class were given by **MR. WILLIAM DEAL**); and (5) one bunch of **Mrs. Eastham** (the prizes were given by Messrs. Jones & Sons, Ltd.).

MR. TOM JONES showed the best six bunches, distinct, to include the varieties **Edrom Beauty**, **Isabel Malcolm** and **Dobbie's Sunproof Crimson** (the prizes in this class were given by Messrs. Dobbie & Co.).

The "Hawmark" Challenge Cup for twelve bunches, distinct, open to amateurs (the cup, valued at 20 guineas, presented by Messrs. ALEX. DICKSON & Sons), was won by **MR. JAMES HALL**, Moy, Co. Tyrone. Again these Irish-grown Peas were of splendid quality, and embraced such sterling varieties as **Earl Spencer**, **Etta Dyke**, **Tennant Spencer**, **Edna Unwin**, **Marjorie Linzee**, **Mrs. W. J. Unwin** and **Mrs. C. Broadmore**.

The piece of silver plate offered by **Commander Humphrey, R.N.**, in the class for six bunches of Sweet Peas, distinct, was won by **MR. J. BEACH**, Elphicks Farm, Horsmonden, Kent; the "Horace Wright" Cup for twelve bunches, dis-

tinct, by **MR. EDGAR JONES**, Turnford Villas, Broxbourne, and the "Walter Voss" Challenge Cup by **MR. LEWIS PETERS**, Strathmore, St. Austell.

NOVELTIES.

The following awards were granted by the Floral Committee at the Society's trials at Sutton.

FIRST-CLASS CERTIFICATES.

Barbara (orange), shown by **MR. ROBERT HOLMES**, Norwich.

Dobbie's Thomas Stevenson (rose, with orange sheen in the standard), shown by Messrs. DOBBIE & Co.

AWARDS OF MERIT.

Red Star (reddish crimson), shown by **MR. A. MALCOLM**, Duns.

May Campbell (cream ground marbled with carmine).

Mauve Queen (mauve, showing suffusions of rose and lavender).

Mrs. B. Gilbert (suffusion of purple-lilac down the middle of the standard, with a staining of this colour on the white wings). These three from Messrs. DOBBIE & Co.

F. Seymour Davis (rosy-lilac with a silvery sheen), shown by **MR. F. SEYMOUR DAVIS**, Farnham.

AWARDS TO NON-COMPETITIVE EXHIBITS.

Large Gold Medal to **MR. R. BOLTON**, Carnforth.

Gold Medals to Messrs. Dobbie & Co., Edinburgh; **Robert Sydenham**, Ltd., Birmingham; **James Carter & Co.**, Raynes Park.

Silver-gilt Medals to **MR. JAMES BOX**, Lindfield, Sussex; Messrs. Sutton & Sons, Reading; **S. Bide & Sons**, Ltd., Farnham, Surrey; and **MR. WM. DEAL**, Brooklands, Kelvedon, Essex.

Silver Medals to Messrs. Carter Page & Co., London Wall; **J. Stevenson**, Wimborne; **E. W. King & Co.**, Coggeshall; **Jones & Sons**, Shrewsbury; **W. E. Alsen**, Denmead, Hampshire; **Chas. W. Breadmore**, Winchester; and **G. Stark & Son**, Great Ryburgh.

Bronze Medals to Messrs. W. O. Cautley, Bury St. Edmunds; **W. Lumley & Co.**, Hayling Island; **Admeyer and Marsden Jones**, Tilston, Malpas, and **Jarman and Co.**, Chard.

Other exhibitors of non-competitive groups were **MR. ALF. EDWARDS**, Fordham; Messrs. **Walter Voss** and **Co.**, Ltd., Millwall; and **MR. P. E. COLEMAN**, Eelsenham, Essex.

WOLVERHAMPTON FLORAL FETE.

JULY 11, 12, 13.—The annual floral fete, held in the West Park, Wolverhampton, was favoured with beautiful weather on the opening day, when a great crowd of visitors passed through the five large tents in which exhibits from nearly all parts of the country were displayed. The show compared very favourably with the best of its 22 predecessors, and it is doubtful if **Roses**, **Sweet Peas**, **hardy flowers**, and groups of foliage and flowering plants have ever been seen in greater variety or of better quality at Wolverhampton. Fruit was not very largely shown. The number of entries exceeded those of last year.

PLANTS.

The most important group class was one for a collection of plants in or out of bloom arranged on a space of 30 feet by 12 feet down the centre of the unusually large and lofty marquee. Cut flowers in vases or concealed receptacles containing water were allowed. Four prizes were offered, viz.: 1st £40; 2nd £30; 3rd £20; 4th £10. There were four exhibits. The first prize was won by Messrs. **J. CYPHER & SONS**, Cheltenham, who had an artistically-arranged group of choice foliage and flowering plants, in which were many varieties of richly-coloured **Codiaeums**, **Cattleyas**, **Phalaenopsis**, **Oncidiums**, **Kalanchoe flammula**, **Ixoras**, &c., were effectively used over a beautiful groundwork of **Caladium argyrites**, **Begonias**, **Ferns** and other plants. An ornamented rustic bridge formed the centre-piece, and on either side there were tall arches decorated with crimson and white **Carnations**. 2nd, **SIR GEORGE H. KENRICK**, Whetstone, Edgbaston (gr. **MR. J. V. MACDONALD**), whose exhibit was rich in foliage plants (especially **Codiaeums**), but rather weak in flowers. Although the arrangement was effective, it was hardly equal to

some previous efforts of this well-known Midland exhibitor. In the 3rd prize group, which came from **MR. W. A. HOLMES**, Chesterfield, yellow-leaved **Codiaeums** were a feature.

The group class next in importance was reserved for ornamental foliage plants, **Ferns**, &c. (flowers and plants in bloom not allowed), to cover 250 square feet. Here again Messrs. **J. CYPHER & SONS** excelled with remarkably well-grown and exquisitely-coloured **Codiaeums** arranged over an irregular body-work of light-leaved **Caladiums**, **Coleus**, &c., relieved with **Palms**, well-coloured specimens of **Nandina domestica**, &c. The 2nd award fell to **MR. W. A. HOLMES**. 3rd, **SIR GEORGE H. KENRICK** (gr. **MR. J. V. MACDONALD**). 4th, **MR. W. VAUSE**.

In a class for 20 plants in pots not exceeding 8 inches in diameter there were three exhibits. At least eight specimens were to be in bloom. 1st, Messrs. **JAS. CYPHER & SONS**, who exhibited nine well-flowered **Ixoras**, seven **Clerodendrons**, two **Acalyphas**, one **Croton** and one **Dracæna**. 2nd, **B. H. MAUNDER**, Esq., Trysall, Wolverhampton (gr. **MR. C. WEAVER**).

In a class for a group of flowering plants, limited to one kind only, but any number of colours or varieties of the same kind allowed, on ground space of 50 square feet, four exhibits were placed before the judges, who awarded the 1st prize of £10 to Messrs. **BLACKMORE & LANGDON**, Bath, for a splendid collection of named varieties of double-flowered tuberous rooted **Begonias**. The flowers were shapely, of great substance, in some cases about 7 inches across, and represented a wide range of colour, from pure white, through shades of cream, pink, and rose to scarlet and crimson. 2nd, **MR. F. DAVIS**, Pershore, also for **Begonias**, but these were rather past their best. 3rd, Messrs. **J. CYPHER & SONS**, who showed **Clerodendrons**.

J. A. KENRICK, Esq., Berrow Court, Edgbaston (gr. **MR. A. CRYER**), won 1st prizes in classes provided for (1) a collection of **Caladiums**, in not fewer than six distinct varieties, and (2) a collection of **Coleus** in not fewer than four varieties. Messrs. **J. CYPHER & SONS**, had the best half-dozen specimen **Palms**.

Only two exhibits were made in the amateurs' class for a group of plants in or out of bloom, on a space of 250 square feet. **J. A. KENRICK**, Esq., Berrow Court, Edgbaston (gr. **MR. A. CRYER**), was placed 1st for a bold arrangement, consisting of good **Ixoras**, **Francoas**, **Kalanchoes**, **Crotons**, **Dracænas**, **Palms**, **Bamboos**, and **Ferns**. 2nd, **MR. W. R. MANNING**, Dudley.

Four exhibits were made in a class for 12 **Begonias** (six single and six double). 1st, **J. TAYLOR**, Esq., Pershore, with large, heavy, well-flowered specimens. 2nd, **J. A. KENRICK**, Esq. (gr. **MR. A. CRYER**).

ROCK AND WATER GARDENS.

During recent years rock and water gardens have become very popular at exhibitions, and the three exhibits in a special class provided for them found hosts of admirers on the first day of the show. Each competitor was allotted space not exceeding 30 feet by 14 feet. The 1st prize was gained by Messrs. **J. BACKHOUSE & SON**, York, who had a bold design of rockwork, planted with a rich collection of subjects, including **Campanulas**, **Sedums**, **Spiræas**, **Sarcocollas**, **Swart Conifers**, &c. Near the front there was a miniature pool, with **Lilies** floating on the water surface. At one corner of the group a stream of water trickled over the huge boulders; it was very realistic. **MR. J. E. KNIGHT**, Wolverhampton, who was placed 2nd, had a well-designed exhibit suitably planted; the effect was pleasing. 3rd, Messrs. **W. ARTINDALE & SONS**, Sheffield.

ROSES.

Roses were shown in splendid condition, and **MR. HUGH DICKSON**, of Belfast, Ireland, was the most successful exhibitor of these flowers.

The principal class was for 72 varieties, distinct. 1st, **MR. HUGH DICKSON**, with exquisite specimens of **George V.**, **Lyon Rose**, **Archie Gray**, **Leslie Holland**, **Lohegrin**, **Hugh Dickson**, **Frank Thorpe**, **Charles K. Douglas**, **Countess of Shaftesbury**, **Oberhofgartner Terks**, **Mrs. Foley Hobbs**, and **William Shean**. Messrs. **HARKNESS & CO.**, **Hitchin**, were 2nd with rather small but shapely blooms of **Hugh Dickson**, **Edward André**, **Earl of Dufferin**, **Charles LeFebvre**, **William Shean**, and **Florence Pemberton**.

3rd, Mr. GEORGE PRINCE, Oxford. 4th, Messrs. PERKINS & SON, Coventry.

Mr. HUGH DICKSON beat five competitors in a class for 48 varieties, distinct. He had superb blooms of Rhea Reid, Yvonne Vacherot, Archie Gray, C. K. Douglas, Bessie Brown, and J. B. Clark. 2nd, Mr. G. PRINCE, Oxford.

In a class for 12 varieties, three blooms of each, Mr. HUGH DICKSON again took the lead with a very choice, level lot of blooms of the Lyon Rose, Hugh Dickson, Caroline Testout, Leslie Holland, and Mrs. Stewart Clark. 2nd, Messrs. HARKNESS & CO., Hitchin, whose best blooms were Hugh Dickson, A. K. Williams, and Duchess of Bedford.

In a class for 24 varieties, distinct, there were eight good exhibits, and the 1st prize went to the Belfast grower, Mr. HUGH DICKSON, who showed large, shapely specimens of J. B. Clark, Frau Karl Druschki, Lohengrin, and the Lyon Rose. 2nd, Mr. J. MATTOCK, Oxford, whose best blooms were the Lyon Rose, A. K. Williams, Mme. Victor Verdier, and Suzanne Marie Rodocanachi. 3rd, Messrs. HARKNESS & CO.

Mr. HUGH DICKSON was also placed 1st in classes for (1) 12 varieties put into commerce during the years 1908, 1909, and 1910, and (2) a bowl of Roses.

The best dozen blooms of any dark-coloured Rose were of the variety Reynolds Hole, exhibited by Mr. GEORGE PRINCE. Messrs. PERKINS & SON took the lead in a class provided for 12 light Roses; and Mr. GEORGE PRINCE had the winning set of 12 Tea Roses.

In a class for 12 bunches of decorative Roses, shown with their own foliage and buds, there were seven excellent exhibits. 1st, Mr. J. MATTOCK, whose bunch of the Lyon Rose was exceptionally good. The same exhibitor was placed 1st in a keenly-contested class for a vase of Roses.

BOUQUETS AND CUT FLOWERS

Messrs. PERKINS & SON, Coventry, secured 1st prizes in classes provided for (1) bouquet for the hand, and (2) bridal bouquet (with Orchids) and two bridesmaids' bouquets (Orchids excluded).

The best collection of decorative plants and bunches of cut flowers arranged on staging in a special contest, to form the best collection shown by Messrs. BASTOCK & SON, Moseley, Birmingham. 2nd, Sir GEORGE H. KENRICK, Edgbaston (gr. Mr. J. V. Macdonald).

Messrs. HARKNESS & SON, Bedale, had the most attractively-arranged group of hardy border flowers on a table space measuring 15 feet by 5 feet, employing four tiers. They showed excellent bunches of Lilliums, Gaillardias, Alstromerias, Phlox, Campanulas, Cimicifuga racemosa, and Malvas. 2nd, Messrs. G. GIBSON & CO. The last-named exhibitors excelled in a class for Delphiniums. The spikes were long and strong, especially those bearing dark flowers. 2nd, Messrs. HARKNESS & CO., Bedale. 3rd, Messrs. BLACKMORE & LANGDON.

There was strong competition in a class for a decorated dinner table measuring 8 feet by 4 feet. The 1st prize was awarded to Miss ADE DAVIES, Pershore, who employed orange-coloured Alstromerias, yellow and white Sweet Sultan, and sprays of a small, yellow-flowered Oxidandium. 2nd, Mrs. NEWBOLD, Derby, with yellow-shaded Roses relieved with sprays of Selaginella and Adiantum Ferns.

Of the eight exhibits in the class for dinner tables, decorated only with Sweet Peas, Miss F. JENKS, Codsall, excelled with a decoration of pale pink flowers and long sprays of Selaginella.

For a display of Carnations on a space of 6 feet by 4 feet there were two entries only. The 1st prize was well won by Mr. C. F. WALTERS, Balcombe, whose long-stemmed flowers were very handsome. 2nd, Mr. J. E. KNIGHT, Wolverhampton.

SWEET PEAS.

In a class for 18 varieties of Sweet Peas, Sir R. L. BAKER, Bart., M.P., Rnston (gr. Mr. A. E. Usher), beat three exhibitors with unusually large, substantial flowers borne on long, strong stems; 2nd, Dr. J. E. PHILLIPS, Malpas.

Mr. Henry Eckford offered prizes for 12 varieties, and the 1st prize was awarded to Mr. J. WATSON, Wem, Salop, for beautifully fresh flowers effectively displayed. 2nd, Mrs. TWENTYMAN, Wolverhampton (gr. Mr. C. T. Flower).

Robert Sydenham Limited also offered prizes for 12 varieties, Mrs. W. D. T. RICHARDS, Kingswinford, winning the 1st prize.

F. E. MUNTZ, Esq., Umberslade Hall, Birmingham (gr. Mr. H. S. Foster), was placed 1st in a class for six varieties, the prizes for which were also offered by Robert Sydenham Limited.

Messrs. Bakers offered prizes for six varieties. Sir R. L. BAKER, Bart., M.P. (gr. Mr. A. E. Usher), led with superb flowers. This exhibitor was also an easy 1st in a class provided by Messrs. Webb & Sons for six varieties.

FRUIT AND VEGETABLES.

In a class for four bunches of Grapes there were five entries. The 1st prize was awarded to J. DRAKE, Esq., Orford House, Market Rasen (gr. Mr. W. Parker), for handsome bunches of Madresfield Court, Black Hamburgh, Muscat of Alexandria, and Buckland Sweetwater. 2nd, the Duke of NEWCASTLE, Workshop (gr. Mr. S. Barker), who also secured 1st prizes in classes for (1) one dish of Peaches, (2) one dish of Nectarines, and (3) three dishes of Tomatoes.

LORD HATHERTON, Teddesley, Penkridge (gr. Mr. H. Taylor), had the best three dishes of Strawberries.

The leading fruit class was for 10 dishes in not fewer than eight kinds. The 1st prize was awarded to the Duke of NEWCASTLE (gr. Mr. W. Parker), whose dishes of Lady Sudeley Apple, Grosse Mignonne Peach, Lord Napier Nectarine, Nigro Largo Fig, Melons, and Madresfield Court Grapes were of superior merit. 2nd, J. DRAKE, Esq. (gr. Mr. W. Parker); 3rd, The Duke of WESTMINSTER, Eaton Hall, Chester (gr. Mr. N. F. Barnes).

The only display of fruit trees in pots came from the KING'S ACRE NURSERIES, Hereford, who were awarded the principal prize of £20, together with an extra prize of £5, given by Alderman Cradock.

VEGETABLES were not strongly represented. In Messrs. Webb & Sons' class for eight kinds, the Marquis of NORTHAMPTON (gr. Mr. A. R. Searle) beat five competitors. 2nd, Mr. E. DEAKIN, Hay Hall, Hay Mills. In a smaller class, in which the prizes were also offered by Messrs. Webb & Sons, Sir T. C. MINDER, Bart., Tettenhall Wood, Wolverhampton (gr. Mr. J. F. Simpson), was awarded the 1st prize.

Messrs. Sutton & Sons' prizes were offered for six kinds, and in this class the 1st prize was won by the Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson), with excellent produce.

HONORARY EXHIBITS

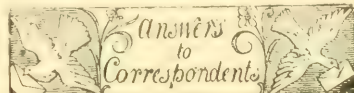
Mr. B. LADHAMS, Shirley, Southampton, arranged a bright bank of hardy flowers (Silver-gilt Medal). Mr. H. N. ELLISON, West Bromwich, showed a group of Ferns, for which a Silver-gilt Medal was awarded. Lady GREY, Enville Hall, Stourbridge, showed a large group of well-grown and well-flowered plants of Souvenir de la Malmaison Carnations (Gold Medal). Mr. W. J. UNWIN, Histon, showed 36 varieties of Sweet Peas. Messrs. DICKSON'S, Chester, had a large collection of Roses and hardy herbaceous flowers (Gold Medal). Messrs. JARMAN & CO., Chard, Somerset, contributed Centaureas, Carnations, and Zonal Pelargoniums (Silver Medal).

Messrs. WEBB & SON, Wordsley, arranged a large exhibit of flowering plants, cut flowers, Melons, and vegetables (Gold Medal). Messrs. CLIBRANS, Altrincham, displayed Roses in variety (Silver-gilt Medal). H. LEE, Esq., Wolverhampton, showed tree Carnations. Messrs. H. B. MAY & SONS, Upper Edmonton, contributed an interesting collection of Ferns (Gold Medal). Floral devices were shown by Messrs. SUCKLING, Wolverhampton (Silver-gilt Medal). Messrs. BAKERS, Wolverhampton, had a small Rose garden, a water garden, and a raised herbaceous border faced with red sandstone planted with a pleasing variety of suitable subjects (Gold Medal and a special piece of plate). Messrs. BLACKMORE & LANGDON, Bath, showed Carnations (Silver Medal). Mr. EDWIN MURRELL, Shrewsbury, arranged Roses in vases and Bamboo stands. Mr. AMOS PERRY, Winchmore Hill, exhibited 50 varieties of Delphiniums. Mr. J. E. KNIGHT, Wolverhampton, showed floral devices (Silver Medal).

Delphinium Carnegie, shown by Mr. AMOS PERRY, Winchmore Hill, was awarded a First-class Certificate.

Obituary.

G. WOODGATE. We regret to record the death of Mr. George Woodgate, which took place on the 5th inst., at Kenley, Surrey. Mr. Woodgate was head gardener to Sir Oswald Mosley, Bart., Rolleston Hall, Burton-on-Trent, for 15 years, but he retired last year. He was formerly in the service of Lord Wolverton, at Warren House, Kingston Hill, Surrey, during which period acted as secretary of the Old Kingston Chrysanthemum Society, succeeding the first secretary, Mr. Thomas Jackson. In those days the Kingston Challenge Cup for Chrysanthemums was the most coveted trophy in the Chrysanthemum world. Mr. Woodgate was held in high esteem by a wide circle of friends. He was an excellent gardener, and he possessed personal qualities that endeared him to those with whom he was intimately acquainted. The funeral took place at Beddington Cemetery on the 10th inst.



BEANS AND PEAS DYING. *H. F. B.* The roots have been destroyed by wireworms and millipedes. It is now too late to save the crop, but good will be done by adding lime to the soil.

BEECH CROCKERS: *Constant Reader.* Scrub the main stem and stouter branches with caustic alkali wash. Gloves should be worn by the operator to protect the skin from injury. The portion of the trunk bare of bark may be treated with Stockholm tar, or, failing that, ordinary gas tar.

BEGONIAS AT AN EXHIBITION. *A. B.* Begonia Gloire de Lorraine and Turnford Hall are distinct varieties, but under the circumstances it would be advisable to select only one of this type. There are other Begonias that flower in the winter, including the hybrids raised by Messrs. James Veitch & Sons, as well as several free-flowering species.

BLACK ACHES ON CHERRY TREES. *H. B.* The best remedy for black aphid (lily) on Cherries is to spray with soft soap and quassia; in some season this does not seem to destroy the pest so successfully as in others, and then it is advisable to add one ounce of liver of sulphur to every 10 gallons of the soap and quassia wash.

BOOKS: *Constant Reader.* The chief books on pests destructive to plants are the following: *The Insect and Allied Pests of Orchard, Bush and Herbaceous Plants*, F. V. Theobald; *Fern Insects*, by J. Curtis; *A Text Book of Agricultural Zoology*, by F. V. Theobald; *Agricultural Zoology*, by Ritzema Bos. The French work you mention may also be recommended.

CARNATION SPORT: *A. B. C.* The flower was too faded for us to judge its merits. Send a specimen, packed in damp moss, for the consideration of the Floral Committee of the Royal Horticultural Society which meets on Tuesday next. We do not undertake to name varieties of Pelargonium.

CATERPILLAR ON ROSES. *H. H.* The caterpillar attacking your Roses is that of the Brindled Beauty Moth, *Biston hirtaria*. Lucet in *The Insect and Allied Pests of Orchard, Bush and Herbaceous Plants* refers to the pest on Roses, although its usual food is Elm, Lime, and Privet. There are great numbers of insects which attack Roses only occasionally.

CONTRACT: *Enquirer.* Assuming that your last telegram was so worded as to constitute a definite acceptance of the salesman's quotation, there would appear to be a binding contract for the breach of which you could claim damages. With regard to the suggested confusion in nomenclature, we do not think there is any such trade custom as the salesman suggests. Yellow Marguerites are generally considered to be *Chrysanthemum frutescens* var. *Etoile d'Or*.

INJURY TO PLANTS BY APHIDS. *E. J. N.* The injury to the plants is caused partly by aphids but their unhealthy condition is mostly due to the unfavourable surroundings in which they have been grown.

EXPENSES INCURRED BY APPOINTMENT. *C. H.* We do not think that you could make a successful claim for the expenses you incurred in taking up the situation, but you have omitted to state why you are leaving so soon, although this is important. If a candidate seeking employment feels that he is entitled to some compensation for expenses incurred in removal he should make a point of getting a signed agreement on the matter. We have repeatedly recommended this practice, but many gardeners appear careless, and in consequence disputes arise from time to time owing to misunderstandings which would never arise if proper arrangements were made before taking up the situation.

FIRE DROPPING. *A. H. D.* Fig-tree canker is the cause of the trouble. The disease is probably present also on the branches, the affected parts of which should be cut out and the wounds covered with tar.

GOOSEBERRIES DISEASED. *K. G. F.* The Gooseberries are attacked by the American Gooseberry-mildew. This is a notifiable disease, and its presence should be reported to the Secretary, Board of Agriculture, 4, Whitehall Place, London, who will send you a pamphlet giving full particulars of treatment.

GRAPEVINE SPOTTED. *H. S. and W. D. J.* The injury to the Grapes has been caused by a deposit of moisture on the berries. The extremes of temperature are great and cause a precipitation of moisture at night time.

HERBACEOUS CALCEOLARIA. *J. Newton.* There are several species of herbaceous Calceolaria found in western South America, only about two of which are hardy in this country. A good example is *C. polyrhiza*, a native of Patagonia. This plant is quite hardy, and spreads by means of underground stems, which produce leafy flowering stems a few inches high. In winter, the plant dies down to below the ground level; but, in the following spring, commences to grow again like any other perennial. Another species that is hardy in sheltered places, but more tufted in growth, is *C. plantaginifolia*. This also dies quite down in winter, and may be described as an herbaceous perennial.

HOLLOW-BUILT WALLS. *A. G. S.* Experience has proved that a hollow-built wall—that is, a wall with an open space of 4 inches in the centre, is not warmer than a solid-built wall; indeed, a solid-built 9 or 12-inch brick wall would attract and absorb the solar rays much more effectively. Another advantage of a solid wall is its stability and its suitability for training fruit trees, whether the trees are secured by means of shreds and bolts of a wire trellis. The cost of constructing a hollow wall would be very little cheaper than one made in the ordinary manner. We may cite, as an example, two walls, about 100 feet in length each, and about 100 yards apart—south or northward. To each were trained Fig trees. One length of wall was hollow in the centre, and the other length was solid. The trees on the solid wall pushed into growth a little earlier and ripened the fruits earlier than those trained against the hollow wall.

HOARSE GREENISH LEAVES. *C. A. Sims.* No disease is present. The injury has been caused by drought.

LILIAM ACUTUM. *J. T.* We cannot ascertain the cause of the trouble from the portion of the plant sent us. Probably the bulb is diseased.

L. MEXICANA. *G. H. J. Johnston.* The correct name of this plant is *L. ferruginea*. It is a handsome and rare evergreen bush or tree, growing from 10 feet to 20 feet high, with deeply-toothed, leathery leaves. A native of Chili and Patagonia, it was one of the earlier introductions of Messrs. Veitch & Sons, having been collected by William Lobb in western South America in 1845-8. Owing to the difficulty of propagating this plant, it has not become common, but it is quite hardy in Ireland and in the south-western counties of

England. The rosy-red and white flowers are produced in racemes in the axils of the leaves, and are almost entirely hidden by the foliage. A full account of this plant, with illustrations, may be found in the *Gardeners' Chronicle*, 1907, xlii, p. 233.

MELON PLANTS WITHERING. *Hampstead.* The Melon roots are affected with eldworm, and it is almost impossible to do anything to save the plants. Try treating the soil with "Phenol," which may check the spread of the pest. When the plants are removed, mix gas-lime with the soil.

MULBERRY. *S. B. Clarke.* It is not in the least necessary to graft the Mulberry; indeed, we know of no suitable stock. It is increased with the greatest ease by means of cuttings. These may be made of leafy wood, about the present time, and they should be inserted under a handlight; or leafless shoots may be put in the open ground as soon as the leaves fall, just the same as is done for Willows. Even stems 1 inch or more thick will form roots.

NAMES OF PLANTS. *A. D. 1.* Gesneria zebrina; 2, send when in flower; 3, Salvia splendens; 4, Saxifraga sarmentosa; 5, Begonia multiflora; 6, Hemanthus Katherine; 7, Curculigo recurvata; *Q. S. A. L.* Maranta Makoyana and Chlorophytum elatum variegatum.—*Anxious.* 1, A natural hybrid between Odontoglossum Wallisii and O. odoratum; 2, Oncidium macranthum.—*H. W. W.* Hemanthus multiflorus.—*O. R.* 1, Odontoglossum Lindleyanum; 2, Oncidium pubes; 3, Cattaeum cristatum; 4, Stelis micrantha; 5, Pleurothallis scapha; 6, Ootomeria diaphana.—*C. W.* *Wolverhampton.* 1, Codium Queen Victoria; 2, C. Evansianum; 3, C. Weissmannii; 4, Gesneria tubiflora.—*F. M.* 1, Silene inflata; 2, Saxifraga cordifolia; 3, Tradescantia virginica; 4, Funkia ovata; 5, Lamium longiflorum; 6, Senecio Doria; 7, Polemonium coeruleum album; 8, Chrysanthemum maximum; 9, Cephalaria tartarica; 10, Lythrum salicaria; 11, Lysimachia vulgaris; 12, Campanula glomerata; 13, Enocheira fruticosa; 14, Inula glandulosa; 15, Alstromeria aurantiaca.—*W. R.* The Rose was insufficiently fresh for identification.—*C. W.* Elaeagnus multiflora.—*J. Eyre, Ipswich.* 1, Ceris Siliquastrum (Judas Tree); 2, Vitis sp.; 3, Catalpa sp.; 4 and 6, Rubus Lambertianus; 5, R. ichauginensis; 7 and 8, Vitis sp.; 9, V. sinensis; 10, V. repens; 11, Kalmia angustifolia; 12 and 13, forms of Veronica speciosa; 14, Vitis species. Some of the specimens are new Chinese shrubs, their identity being as yet somewhat uncertain. On another occasion do not send more than six specimens at one time.—*A. S.* 1, a garden variety of Phyllocactus; 2, Gasteria verrucosa; 3, Kerria japonica; 4, Lippia citriodora; 5, Bougainvillea Sanderiana; 6, Swainsonia corniculifolia; 7, Ardisia crenulata; 8, Ruellia maculata; 9, Hibiscus rosa-sinensis var. Cooperi; 10, Liriope spicata variegata; 11, a garden variety of Codium variegatum.—*Fernie.* 1, Polystichum angulare (practically normal); 2, resembles Lastrea æmula, but the specimen being shrivelled and barren, this name must not be accepted with certainty; it might possibly be a seedling of *L. dilatata*; 3, *L. filix-mas*; 4, *L. f.-m.* (may be named distans); 5, *L. f.-m.* foliose, but the form is not worth naming.—*R. L., Highbury.* We do not undertake to name varieties of Pelargoniums (Geraniums). Send them to some nurseryman who makes a speciality of the plants.—*Z. A. I.* Hypericum Moserianum; 2, Dianthus fragrans; 3, Hesperis matronalis; 4, Campanula carpatia; 5, Rose (too far faded to identify); 6, Sedum oppositifolium; 7, *S. rupestre*; 8, *Vitis* sp.; 9, Cephalaria alpina.—*A. B. H.* *Vitis* rupestris and Asperula odorata.—*E. G. H.* Escallonia Philippiana, a native of Chili.—*M. A.* Catasatum cristatum.—*Ionius.* 1, Lapeyrouxia cruenta; 2, Maranta bicolor; 3, Abutilon megapotamicum; 4, Graptochylum hortense; 5, Polygala oppositifolia; 6, Cyrtanthus lutescens.—*J. C. P.* Hemanthus coccineus.

PEAR LEAVES EATEN. *J. K.* The Pear leaves are attacked by the larvae of the Pear-leaf sawfly, Ericopampa limacina. They are generally spoken of as the slugworm or slug. This slugworm is a very common and often harmful

insect to Pear trees, especially when attacked early in the season, as in your case. Spray the trees with arsenate of lead, which may be obtained in paste form from the horticultural sundriesmen. Apply the specific as a fine spray.

PLUM LEAVES WITH SILVER BLIGHT. *A. S.* The trees are affected with "silver leaf." The issue for November 12, 1910, contains an illustrated summary on the latest investigations in the disease.

ROSE—Barnedanth. The Rose you send is Mme. Plantier. This variety was introduced to commerce in 1835, which will probably account for your friends not recognising it. There are few more reliable white Roses than this variety.—*K. & B.* The flowers you send are those of the old green Rose, viridiflora. It belongs to the China class, and was introduced in 1856.—*L., Hants.* The sport from Crimson Rambler is scarcely worth keeping; there are many varieties of the same colour which possess superior qualities.

ROSES DAMAGED BY INSECT. *Regular Reader.* The damage to the Roses has been caused by the larvae of two species of sawfly. The skeletonized leaves are due to the Rose slugworm, Ericopampa roseæ; the curled leaves are infested by the larvae of the leaf-rolling sawfly, Blennocampa pusilla. The former pest may be killed by spraying with nicotine wash, arsenate of lead, or paraffin emulsion.

SEEDLING BRIARS. *W. B. M.* Rose hips seldom germinate evenly. A period of from three to twelve months sometimes elapses before they show signs of growth. It may be that your seeds were kept too dry, or mice may have damaged them.

SLUGS AND SNAILS IN A TOWN GARDEN. *Mrs. M. M. F.* Your best plan to destroy the slugs and snails under the special circumstances you describe is to dig into and sprinkle on the soil the preparation known as "Vaporite." Snails may, to some extent, be destroyed by nicotine wash. When the leaves are much curled nothing but hand picking is effectual, as the creature is so concealed as to not be reached by any system of spraying.

SPRING ONIONS DISEASED. *E. T., Welwyn.* The plants are affected with the Onion-bolt rot, and no cure can be effected at this late stage. It will be well to add lime to the soil when the crop is removed.

SWEET PEAS UNHEALTHY. *A. V. B.* Water the roots four times at intervals of three days with a solution of sulphate of potash—one ounce to one gallon of water.

TOMATOES DISEASED. *Toms.* The plants are affected by a bacterial disease, infection being brought about by insects when the plants are in bloom. Endeavour to keep down insects as much as possible.

TOMATOES WITH HARD PATCHES. *H. C., Woodton.* No disease is present. The spotted appearance and unequal ripening of the fruits are due to a lack of sulphide of potassium in the rooting medium. Water the roots at intervals of three days with a solution of one ounce of this substance in one gallon of water.

TULIPS PLANTED WITH ROSES. *A. B.* We do not suspect that the Tulips are responsible for the failure of the Roses, unless the roots of the latter were unduly disturbed when planting the bulbs. It is probable that the soil is at fault. Apply a mulching of cow manure at this season, and fork it into the ground in the autumn.

VINE LEAVES. *Subscriber.* No disease is present, but the foliage is very badly infested with aphids. Nicotine compounds are the best specifics to employ in the case of this pest.

XANTHOXERAS SERRIFOLIA. *P. L. H.* This species does not often fruit in this country. The fruit is not edible, neither does it appear to possess any economic value. The tree belongs to the Order Sapindaceæ, and is allied to the Horse Chestnut.

Communications Received. K and B.—Barnedanth W. B. M.—F. W. H. W. C. T. D. J. O. P. D. S. W. J. R. J. Devon H. R. W. E. B. A. N. J. S. Durham M. K. A. D. W. E. S. A. C. S. A.—S. J. T. Essex H. F. D. H. S. N. T. H. Hythe A. P. C. P. E. K.—H. T. S. Dorset—Anxious T. L. V. A. and Cie. Paris. Perlebeke J. K. J. D. N. Y. Z. F. M. R. V. and Son—F. M. W. W. A. G., Penbridge A. Regular Reader—W. A. C. Geo. Forrest—N. H. M. W. H. Y. W. L. W. M. P. and Son—G. J. I. autumn.

THE Gardeners' Chronicle

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POTATOS FOR AUSTRALIA.

FOR the last year or two it has been almost impossible for British seedsmen to export Potatos to any part of Australia. A Quarantine Act was passed in 1908 prohibiting the importation of plants or parts of plants, and under that Act several proclamations have been made. In the *Australian Gazette*, of October 1, 1910, the importation into Australia of Potatos from any country in which the disease *Chrysophyctis endobiotica* (*Synchytrium endobioticum*, Percival) is known to exist was prohibited, and from any other country, unless certain conditions were complied with. Further, by a Proclamation published in the *Gazette* of December 31, 1910, the importation into Australia of Potatos from any country was prohibited, unless certain conditions were complied with in respect of the disease caused by *Phytophthora infestans*.

In the *Gazette* of March 25, 1911, a further Proclamation by the Governor-General appeared as follows:—

"Now therefore I, William Humble, Earl of Dudley, Governor-General, acting with the advice of the Federal Executive Council, do hereby repeal the Proclamation of 1st October, 1910, so far as it relates to the importation of Potatos into Australia, and I hereby repeal the Proclamation of 31st December, 1910, and I do hereby prohibit the importation of Potatos from any country unless—

1. They are accompanied by an official certificate, dated and signed by a responsible officer of a Government Depart-

ment of the country of origin, identifying the Potatoes, specifying the quantity, and certifying—

(a) That at the date of the issue of the certificate they were free from the disease caused by *Phytophthora infestans* (known as Irish Blight), and from the disease *Chrysophyctis endobiotica* (known as potato canker, black scab, warty disease, and cauliflower disease in potatos);

(b) That they were grown in the country named;

(c) That they were grown at least twenty miles from any place known, after due investigation, to be or to have been within five years infected with either of the said diseases;

(d) That they were packed in the country of origin in clean, new packages.

2. The bags, crates, or other packages containing the Potatoes are marked on the outside with the name of the country of origin and with other distinguishing mark or marks.

3. The Potatoes, after being landed, are planted in quarantine in an approved place, and after having matured, are, with the product of their cultivation, found, on inspection, to be free from disease.

4. The importer enters into a bond in the sum of £50, conditioned that he will pay the cost of inspection of the Potatoes and of supervision, and that the Potatoes and any parts thereof, and any crop produced therefrom, shall not be dug or removed from the approved place without the written permission of the Chief Quarantine Officer, and that he will give written notice of not less than one week to the Chief Quarantine Officer of his desire to dig the Potatoes.

"Provided that the Minister may permit Potatoes which are certified by a Quarantine Officer to be free from disease to be imported under and subject to such conditions as the Minister may think fit to impose, for use as food."

This is a matter of very great importance to the large seed merchants and others who are interested in the Australian trade. It is of equal importance, of course, to those in Australia who are interested in obtaining the best varieties of Potatos from Britain. The new rules do not improve the situation. It will be next to impossible to find a district in this country in which Potatoes have been grown for five years and have never been infected with *Phytophthora infestans*, and quite impossible to find one where this disease has not occurred within a radius of twenty miles.

The treatment which is to be meted out to the Potatoes after arrival is interesting. They are to be grown in quarantine, and will not be allowed to be distributed until they have proved themselves free from the diseases mentioned to the satisfaction of the Chief Quarantine Officer. This restriction clearly indicates that the Authorities have only in view importations of comparatively small lots for seed purposes.

In the circumstances it would be a good policy on the part of the Australian Agri-

cultural and Horticultural Authorities to endeavour to raise races of Potatos for themselves. They could obtain seed grown in this country from the best varieties, and in a few years time they would be in possession of good stocks. In the presence of restrictions such as are now promulgated it is impossible for British firms to do business in the ordinary way of exporting Potato tubers. W.

NEW OR NOTEWORTHY PLANTS.

MELANTHUS INTERMEDIUS, HYB. NOV.

MELANTHUS COMOSUS has been growing at La Mortda since 1872, when the late Mr. Daniel Hanbury received seeds of it from the late Prof. Max Owen. In *B. M. Mag.*, tab. 501, this plant is figured under the name *M. minor*. We further grow *M. major* in an old garden plant, of which the introduction is unknown to me, and also *M. pectinatus*, figured in *Bot. Mag.*, tab. 6557, as *M. truncatus*. *M. truncatus* was brought from Kew by Mr. Daniel Hanbury in November, 1874, and flowered here in 1879 for the first time. From this specimen the plate in *Bot. Mag.* was drawn.

Several years ago a fourth plant made its appearance at La Mortda by the side of a bush of *M. comosus*, so that the branches of the two plants are quite intermixed with each other.

This new-come proved to be a hybrid between *M. comosus* and *M. major*. It shows exactly intermediate characters. So far, the plant has failed to ripen seeds, but it has been grown from seeds of *M. comosus*, and it may therefore be possible that it occurs in other gardens which have had seeds of *M. comosus* (or *M. minor*) from us.

M. intermedius is much more vigorous and taller than either parent. It has leaves the size of *M. major*, but less glaucous, the stipules are smaller, the petioles less broadly winged, and almost quite glabrous at the back and not tomentose, as in *M. comosus*. The inflorescences are not quite so long, but exceeding the leaves in length, as in *M. major*, less curved at the top and almost as dull-coloured, but again longer than in *M. comosus*, where they are shorter than the leaves and also brighter-coloured. The bracts, pedicels, and flowers are exactly intermediate between the two species.

The plant is probably the first hybrid observed in this genus. A. B., La Mortda.

IMPATIENS KEWENSIS.

THIS is a hybrid which has been raised at Kew from *I. platypetala*, an old garden plant, and *I. Herzogii*, a new introduction from New Guinea, having the general characters of *I. Hawkeri* and flowers of the brightest orange-scarlet colour. The genus is a very large one, and many of the species are difficult to define. If *I. Sultanii* and *I. Holtzii* are forms of one species, as some believe, then *I. Hawkeri* and *I. Herzogii* may be looked upon as forms of another, with *I. platypetala* close up to them. Be that as it may, by crossing *I. platypetala* with *I. Herzogii* we have obtained a hybrid which is a happy combination of its parents, the habit of the plant being good and the flowers large, showy and bright in colour. It is remarkable that by mixing a rosy-lilac with a bright orange the result is a hybrid with bright crimson flowers. There is a little variety of shade in the several seedlings, but they are all reds. The cross was effected by Mr. C. P. Raffill, who sowed the seeds in March, the first flowers opening in June. W. W.

MELANTHUS INTERMEDIUS REEFER, NOV. HYB. EX *M. COMOSUS* × *M. MAJOR*. Characteristic of *M. intermedius*, robusta, foliis ovatis, lobatis, corolla M. major, pediculis glabris, stipulis minutis, inflorescentia foliis superante, corolla lobis, nunc truncatis, nunc intermedia, apice in *M. comosus*, brunneis fere ut in *M. major*; bracteis viridulis. In *Bot. Mag.*, tab. 6557, as *M. truncatus*.

DENDROBIUM SCHUETZEI, ROLFE.

Another striking *Dendrobium* of the D. Deare group has been introduced by Messrs. Sander & Sons, St. Albans, and will be described under the above name. It has very large white flowers, with obovate-orbicular petals, and a strongly three-lobed lip, the side lobes of which are broadly rounded, and the front lobe broadly obovate or nearly orbicular, with a distinct apicula. The petals and lip are much broader than in *D. Dearei* and very different in shape. It should prove a great acquisition to the ranks of cultivated *Dendrobiums*. R. A. R.

PHIENIX ROEBELINII.

In the *Gardeners' Chronicle* for 1889, vol. vi., p. 475, there is a note from Mr. James O'Brien, together with a figure of a dwarf Phoenix, which had been sent to England by Mr. C. Roebelin, Orchid collector, of Manila, and sold by auction in Messrs. Protheroe & Morris's sale room. This identical plant is now in the Palm house at Kew. In the same volume, p. 758, there is also a note from Mr. Roebelin, stating that this Palm grew in great abundance along the rocky banks of the River Mekong in Siam, as far north as 22° latitude, where the temperature was sometimes as low as 41° Fahr., and that the stems never grew more than about 2 feet in height. He found thousands of young plants, but could get no seeds, owing, the native informed him, to the fondness of monkeys, &c., for the fruits. This Palm is now largely grown by nurserymen, who obtain their stock from imported seeds, and it has become a favourite table plant, a purpose for which the elegance of its leaves and comparative hardness peculiarly fit it. Under cultivation, however, it grows taller than Mr. Roebelin saw it. The oldest specimen at Kew has six stems, and it is 6 feet high, the tallest and strongest stem being quite clear for 4½ feet and measuring 2 inches in diameter. The persistent basis of the old leaves have hardened and become blunt pointed, and they give the stem a "bossed" appearance. The largest leaves are 4 feet long, and there are about 100 pinnae on each leaf, those at the base being spinous, the others 10 inches long and ½ inch wide, the keel rough with scaly hairs, narrowing to a long, elegantly-curved apex, giving the whole leaf the character of an ostrich feather. The pinnae are arranged about equidistant and in the same plane on the midrib, a character which is found in *P. rupicola* also. There is some variety in the width and curve of the pinnae, as shown by the several plants at Kew; still, there is no mistaking this for any other Phoenix; it is by far the most elegant species. The Kew plant is a male, and it has flowered several times. The plant, of which a portion bearing a male inflorescence is shown in the illustration, is in the collection of Mr. E. D. Preston, Beckenham, W. W.

Cambridge University. — Research work	£4,000
Bristol University. — (1) Bio-chemical investigations on cheese; (2) investigations on the treatment of	500
Yorkshire Council for Agricultural Education (Leeds University). — Investigations of atmospheric impurities	210
University College, Reading. — General work on (1) Microflora of cheese; (2) cereal selection	250
South-Eastern Agricultural College, Wye. — (1) Investigations on Tobacco; (2) Mycological Department; (3) Entomological Department; (4) investigations on Hop resins	350
University College of Wales, Aberystwyth. — Botanical survey of Aberystwyth and subsidiary inquiries	150

missioners have stated to the Board that they are willing to contemplate an expenditure of £40,000 per annum for research alone. On March 2 the Commissioners intimated to the Board that they were prepared to recommend the Treasury to allocate £65,000 per annum for agricultural education in England and Wales.

SCOTLAND.

The Scotch Education Department forwarded to the Commissioners on January 12 an application for a sum not exceeding £140,000. The Commissioners informed the Department that they would be prepared to recommend the Treasury to grant a capital sum not exceeding £60,000 on the following conditions:—

- (1) That only one-half of the expenditure ultimately approved is defrayed from the Development Fund; the other half being met by fresh contributions of local authorities and persons interested, and by a contribution from the Education (Scotland) Fund (one quarter from each source).
- (2) That a revised scheme and estimates of expenditure relating to each individual college should be placed before the Commissioners for consideration, before they report to the Treasury.

They also informed the Department that they would be prepared to recommend an annual grant of one-half of the excess of the expenditure of the colleges on what may be called "extension" work (i.e., instruction to agriculturists in the colleges' provinces by such means as lectures, visits, etc., and similar work) over the corresponding expenditure of the year 1908-9, such grant not in any case to exceed £5,000.

IRELAND.

The Commissioners received on July 18, 1910, an application by the Department of Agriculture and Technical Instruction for Ireland for a grant of £15,000 a year for five years, for the establishment and maintenance of an agricultural station for a system of general investigation and scientific research in Ireland. It was proposed that the station should be established in the vicinity of Dublin, the capital expenditure being estimated at £20,000 and maintenance at £15,000 a year. The Commissioners considered the application, and determined to intimate that they would be prepared to consider schemes based on an expenditure of—

- (a) £4,000 per annum for a central institution for investigations and technical advice of a local character;
- (b) £5,000 per annum for scientific research in animal breeding or some other subject undertaken in Ireland as part of a general scheme of scientific research for the United Kingdom.

At the end of the year the Commissioners were awaiting an amended application on the terms thus indicated.

ORGANISATION OF CO-OPERATION AMONG AGRICULTURISTS.

The Commissioners received on September 3, 1910, an application from the Board of Agriculture and Fisheries for an advance of £20,000 per annum for the organisation of co-operation among agriculturists in England and Wales.

The Scottish Agricultural Organisation Society also applied for a grant not exceeding £1,500 per annum, and the Agricultural Organisation Society for England and Wales made a request for an annual grant of £13,704 (together with a capital sum of £250) to meet the cost of a scheme of complete reorganisation of its work. The Commissioners ultimately decided to propose a scheme for the constitution of a representative association, possibly based upon a reorganisation of the existing society, to which might be entrusted the expenditure of the sums required for the energetic promotion of co-operation; and meanwhile to make to the society an interim grant of perhaps £5,000 to enable it to carry on its work, of which the Commissioners desire to express a high opinion. The Commissioners have not yet definitely considered a recommendation in regard to Scotland, and an application expected from the Irish Agricultural Organisation Society had not reached the Commissioners at the end of the year.



FIG. 10.—PHIENIX ROEBELINII SHOWING MALE INFLORESCENCE.

AGRICULTURAL RESEARCH AND EDUCATION.

The first report of the proceedings of the Development Commissioners for the period from May 12, 1910, to March 31, 1911, was issued on the 17th inst. We extract the following particulars respecting the manner in which applications had been met on March 31st last.

The Treasury forwarded to the Development Commissioners on September 2, 1910, an application by the Board of Agriculture and Fisheries for an advance of £50,000 per annum for the organization of a system to aid and develop agriculture by the provision of technical advice for farmers and by promoting scientific research and experiments in the science, methods and practice of agriculture. At a later date the Board estimated that an expenditure of £25,000 would be necessary for the financial year 1911-12. The Commissioners decided to recommend that the following grants, or such proportion as might be required for the financial year, should be paid to the Board for the purposes indicated:—

Harper Adams Agricultural College. — Research on wart disease and finger and toe	100
Royal Veterinary College. — Investigations in respect of vaccination	1,390
The Incorporated Society for Extending the Rothamsted Experiments	2,000
The British Dairy Institute, Reading	60
Woburn Experimental Station	600

The Commissioners further intimated that they would be prepared to recommend additional interim grants not exceeding £3,000 to other institutions not at that time dealt with by the Board; also grants of £1,000 each for scholarships and expenses of administration when estimates, &c., were supplied to them. The Com-

THE FLOWERS OF CHAUCER.

(Continued from page 25.)

PEAN.

1. This Absolon ne roughte nat a bene
Of al þat þat þat *Man of Lawes Tale, II. 8.*
2. Þat he þat þat *Man of Lawes Tale, II. 8.*
3. "Nought is it but a bene."
Marchaundes Tale, II. 163.
4. Soþe praysith nought his plying worth a
Marchaundes Tale, II. 163.
5. If he wil serve the, rek not a bene.
Nonne Prest's Prologe, III. 215.
6. Lipþes thin, not fat, but ever lene,
They serve of naught, they be not worth
a bene. *Court of Love, IV. 159.*
7. Suche argumentis ben not worthe a bene.
Troilus and Cryseyde, V. 156.
8. God helpe me so, I counte hem nought a
bene. *Id., V. 249.*
9. I yeve not of her harme a bene.
Romaunt of the Rose, VII. 218.
10. Syn I am fre, I counte him not a bene.
Minor Poems, VII. 150.

The Bean was in Chaucer's time the proverbial example of worthlessness.

BEECH.

1. Mapul, thorn, beech, hasil.
Knights Tale, I. 182.
2. Bycause oure fuyr was nought y-maad of
beech.
Prologue of the Chanounes Yeman, III. 36.
3. This fulschepounat
Out of his bosom took a bechen cole.
Chanounes Yeman, III. 111.
4. And whan that the chanounes bechene cole
Was burnt. *Id., III. 111.*

Chaucer's Beech requires no comment.

BIRCH.

1. Ook, fyr, birch, asp.
Knights Tale, I. 182.

BITTER SWEET.

1. For unto hem it is a bitter swete.
Prologue of the Chanounes Yeman, III. 55.
2. The bitter-sweet was an Apple, sweet at
first, but leaving a bitter taste. It is often
named by medieval writers as an emblem
of the after bitterness of forbidden
pleasures, and there is little doubt it was
founded on Solomon's description: "Her
lips drop as an honey-comb and her mouth
is smoother than oil, but her end is bitter
as wormwood."

BLACKBERRY.

1. Blackberry, wandering asray.
Skent.

BOX.

1. The box-tree, or the asschen deed and colde.
Knights Tale, I. 182.
2. Elm, plane, assch, box.
Id., 182.
3. Of bras thybroughten hornes and of box.
Nonne Prest's Tale, III. 111.
4. The boxe pipe tree.
Prologue of the Chanounes Yeman, III. 36.
5. And pale as boxe she wax.
Legende of Goode Women, VIII. 72.

It is curious that though the Box is a native tree, and was always a favourite, it never has had a British name. Box is merely the Anglicised form of the Latin Buxus. How Chaucer can have called it "pale" can only be explained by supposing that he closely copied Ovid—*Quercus boxus pallida ferax Metam., II. 4.*

BRAMBLE.

1. And as it is the bramble flour
That bereth the reede hepe.
Prologue of the Chanounes Yeman, III. 111.
2. Bramble is an archaic form of Bramble.

BRIAR.

1. Nought is the croppes, now doun in the breres.
Knights Tale, I. 137.

2. Lik to the steyn of handisch, scharp as
brere. *Marchaundes Tale, II. 181.*
3. That leten her schep wityngely go renne to
the wolf, that is in the breres.
Persones Tale, IV. 68.
4. That with a brere smale and slendre
Men myght it cleve.
Romaunt of the Rose, VII. 41.
5. Netles, thornes, and hokede breres.
Id., 41.
6. Ther were also thisteles thikke,
And breres byrme to prikke.
Id., 41.
7. Brere, and hokede breres.
Id., 41.

In the oldest English briar was the name of the Rose bush, and so it remained for many years, but in all these passages Chaucer means any wild thorny bush.

BROOM.

1. Ther lakkiðe no flour to my dome,
Ne nought so mych as flour of brome.
Romaunt of the Rose, VII. 43.

This is the beautiful flower of our wild Broom.

BULLACE.

1. Notes, aleys and belas.
Romaunt of the Rose, VII. 59.
2. The bullace is the fruit of the Wild Sloe,
but the name is often given to the better
cultivated Plums.

CATAPACE.

1. Of catapus, or of gaytre briis.
Nonne Prest's Tale, III. 220.
2. Catapace is the old name for the lesser
Spurge. It is obsolete in England, but
still exists in French and Italian.

CEDAR.

1. A nyghtyngale upon a cedre greno
Ful lowde song agen the mone shene.
Troilus and Cryseyde, V. 88.
2. Pyn trees, cedres, and olivaris.
Romaunt of the Rose, VII. 57.
3. The cedres high, uprigh as a lyne.
Complaynte of a Lovers Lyfe, VIII. 8.

I should think it certain that Chaucer never saw a living Cedar, but it had its place in English literature long before his time, chiefly in translations from the Bible.

CENTAURY.

1. Of lauriol, centure, and fumytore.
Nonne Prest's Tale, III. 220.
2. Centaury is the translation of Erythraea Centaurium and other plants of the Gentian family. It had a high character in mediæval medicine, and was named after the Centaur Chiron, the reputed discoverer of the plant and its virtues.

CETIVALL.

1. He himself as swete as is the roote
Of lokorys, or ny cetevale.
Milleres Tale, I. 192.

Setwall, spelt in many different ways, is the Celadon. It is still a popular medicine among country herbalists.

CHERRY.

1. Cherys, of which many oon fayne is.
Romaunt of the Rose, VII. 59.

CHESTNUT.

1. Medlers, plowmes, perys, chesteyns.
Romaunt of the Rose, VII. 59.
2. Box, chesteyn, lynde, laurer.
Knights Tale, I. 182.

Chaucer's Chestnut was what we now call the Spanish Chestnut (*Castanea Sativa*).

CINNAMON.

1. My fayre bryd, my swete cynamome.
Milleres Tale, I. 211.

2. Canelle, and setewale of prys.
Romaunt of the Rose, VII. 58.

Canel or Cannelle is the French name of Cinnamon. Chaucer could only have known of it from the imported Spice, but as he names it in a list of trees I cannot omit it.

CLOTE.

1. A cloote-leef he had under his hood
For to hete.
Prologue of the Chanounes Yeman, III. 25.

The clote or clote-bur is the leaf of the great Burdock.

CLOVE. See Gilliflower.

COCKLE.

1. He wolden sowen soñ difficulte,
Or springen cockle in our clene corne.
Schipmannes Prologe, III. 91.

Cockle in the old writers stands for almost any noxious weed in cornfields, and the opposition between Corn and Cockle as emblematic of the opposition between good and bad is a favourite illustration. Of course the origin of the proverb is in the Gospel parable of the Tares and Wheat.

COLUMBINE.

1. Come forth now with thin eyghen columbine.
Marchaundes Tale, III. 190.

I quote this because it is the name of a flower, and some have supposed the flower is meant, but I have no doubt it only means dove-like.

CORN.

COYNES. See Quinces.

CYPRESS.

1. His spere was of fine cipres.
Tale of Sir Thopas, III. 125.
2. The cipres dethe to plaine.
Prologue of the Chanounes Yeman, III. 36.
3. With cipres, and with olyvers.
Romaunt of the Rose, VII. 59.

Cypress was early introduced into English literature, and was probably grown in English gardens in Chaucer's time.

DAISY.

1. Whit was his berde, as the dayesye.
The Prologue, I. 92.
2. With many a thousand dayesies, rede as rose,
And white as the snow I sawly.
Court of Love, IV. 133.
3. The ground was green, ypourded with daisie.
Prologue of the Chanounes Yeman, III. 36.
4. O daisie upon the fresh daisie,
And thou that be for wo in point to die,
That thou ful ready lessenest the pynne
Id., IV. 228.
5. A lady for to singe right womanly
A bargaret in praising the daisie.
The Flower and the Leaf, IV. 250.
6. O daisie, thou art the mede,
Thanne love I most these floures white and
rede,
Such as men callen dayesyes in our toun.
Legende of Goode Women, VIII. 72.

(For fifty lines following this, Chaucer tells of his love for the Daisy.)

7. The longe day I shope me for to abide
For nothing elles, and I do nat lye,
But to be with you upon the daisie;
That men by reson wel it calle may
The daisie, or elles the ye of day,
The emprise, and floure of floures alle.
Id., VIII. 60.
8. The gret goodnesse of the queene Alceste,
That turned was into a dayesye.
Id., VIII. 61.
9. In a Goodly Ballade of Chaucer the daisy
is prominently mentioned, but only as an
ingredient of the Duress Margaret of Feni
broke and a translation of her name.

Chaucer's admiration of the Daisy entitles him to be called the poet of the flower. Among the many references to it I have only quoted those which may, to some extent, be called descriptive. *H. N. Ellis, Botton Vicarage, Bristol.*

(To be continued.)

INJURIOUS INSECTS AND PLANT DISEASES. LEGISLATION IN CANADA.

(Continued from p. 22.)

REGULATIONS

Issued under the Destructive Insect and Pest Act,
(By Order in Council of February 27, 1911.)

1. "Inspector" means a person appointed for carrying out the provisions of the Destructive Insect and Pest Act and the regulations made thereunder.

2. No tree, plant or other vegetation or vegetable matter infested with any of the insects,

Windsor, Ont., and St. John's, P.Q., from March 15 to May 15, and from September 26 to December 7.

At these points of entry the importations shall be fumigated in the fumigation houses provided for that purpose, and a certificate of fumigation will be issued, without which no stock may be taken out of bond.

Importations by mail shall be subject to the same regulations.

All nursery stock originating in Japan or in any one of the States of Vermont, New Hampshire, Maine, Massachusetts, Connecticut and Rhode Island, six of the United States of

(b) Herbaceous perennials (the stems of which die down in winter), such as perennial Phlox, Peonies, Sunflowers, &c.

(c) Herbaceous bedding plants (such as Geraniums, Verbenas, Pansies, &c.).

(d) Bulbs and tubers (such as Hyacinths, Lilies, Narcissi, and other true bulbs, and also the tubers of Dahlias, Irises, &c.).

(e) Cottonwood or Necklace Poplar (*Populus deltoides*) when shipped from and grown in Dakota or Minnesota, two of the United States of America.

4. The port by which it is intended that the nursery stock shall enter shall be clearly stated on each package and all shipments made in accordance with these Regulations will be entirely at the risk of the shippers or consignees, the Government assuming no responsibility whatever.

5. All persons importing nursery stock, except such as is exempt from fumigation or inspection under Section 3 of these Regulations, shall give notice to the Dominion Entomologist, Experimental Farm, Ottawa, within five days of despatching the order for the same, and they shall again notify the Dominion Entomologist on the arrival of the shipment in Canada.

Notice shall also be given to the Dominion Entomologist by all transportation companies, Custom House brokers, or other persons importing or bringing into Canada nursery stock that is subject to inspection as hereinafter provided, immediately such a consignment is received by them. Such notice shall include the name of the consignor and the consignee, the points of origin and destination, the name of the company carrying the nursery stock, as well as the nature, quantity and origin of the same.

6. Nursery stock, not including such stock as is exempt under Section 3 of these Regulations, originating in Europe, shall be imported only through the ports and during the periods specified under Section 3 for stock requiring fumigation, with the addition of the ports of Halifax, N.S., Sherbrooke, P.Q., and Montreal, P.Q., through which ports such European stock may enter from September 15 to May 15. Such European nursery stock, and such other imported vegetation, as the Minister may determine, entering Canada, shall be exempt from fumigation, but shall be inspected either at the port of entry or at its destination to which it may be allowed to proceed, but in the latter case it must not be unpacked except in the presence of an inspector.

7. If, on inspection, nursery stock or other vegetation or vegetable matter is found to be infested with any of the insects, pests or diseases hereinafter specified, it shall be destroyed to the extent deemed necessary by the inspector and in his presence. All cases, packages and packing in which such stock has been contained shall also be destroyed in the same manner.

8. Any inspector entering any lands, nursery or other premises where there is reason to believe that any of the insects, pests or diseases hereinafter specified are or may be present, shall give instructions for the treatment or destruction of any tree, bush, crop or other vegetation or vegetable matter or the containers thereof, which may be found or suspected to be infested with any of the insects, pests or diseases hereinafter specified, and such instructions shall be carried out by the owner or the lessee of the infected or suspected vegetation, vegetable matter or containers thereof, and such remedial treatment shall be carried out and continued until the insect, pest or disease shall be deemed by the inspector to have been exterminated.

9. Compensation not exceeding two-thirds of the value as assessed by the Inspector, of the vegetation or vegetable matter or containers thereof destroyed by the instructions of an Inspector, shall be granted by the Governor in Council upon the recommendation of the Minister.

10. It shall be illegal to sell, offer for sale or in any way dispose of or receive any trees,



FIG. 20.—PELARGONIUM LORD BUTE: FLOWERS MAROON EDGED WITH ROSE.

Awarded R.H.S. Award of Merit at the Olympia Show when exhibited by Mr. W. Treseder, Cardiff (see p. 17).

pests or diseases to which this Act applies, shall be imported into Canada except as hereinafter provided.

3. Nursery stock, including all trees, shrubs, plants, vines, grafts, scions, cuttings or buds which are not hereinafter exempted, entering Canada shall be imported only through the ports and during the periods respectively hereinafter mentioned, that is to say:—

Vancouver, B.C., from October 1 to May 1.
Niagara Falls, Ont., from October 1 to May 15.
Winnipeg, Man., and St. John, N.B., from March 15 to May 15 and from October 7 to December 7.

America, shall, after fumigation, be subject to inspection as provided by Section 6 of these Regulations.

Provided, however, that the following vegetation and florist's stock shall be exempt from fumigation and may be imported at any season of the year and through any port without inspection.

(a) Greenhouse-grown plants, including Roses in foliage which have been grown in pots up to 3 inches in diameter but not larger. A certificate that the plants have been grown under glass must accompany the invoice and shall be signed by the consignor.

shrubs, or other plants, vegetable matter or portions of the same, if the same are infested with any of the insects, pests or diseases hereinafter specified.

11. The owner, occupier or lessee of any premises or place where any of the insects, pests or diseases specified herein shall be found, shall immediately notify the Minister and shall also send to him specimens of such insects, pests or diseases.

12. The destructive insects, pests and diseases to which the said Act shall apply shall include the following:—

The San José scale (*Aspidiotus perniciosus*).
The Brown-tail moth (*Euproctis chrysorrhæa*).
The woolly aphis (*Schizoneura lanigera*).
The West Indian Peach scale (*Aulacaspis pentagona*).

The Gypsy moth (*Porthetria dispar*).
Potato canker (*Chrysophlyctis endobiotica*).
Parasitic diseases affecting Potatoes externally or internally.

Branch or stem canker (*Nectria ditissima*).

Gooseberry-mildew (*Spherotheca mors-uvæ*).

White Pine blister rust (*Peridermium strobi*).

13. The importation of Potatoes into Canada from Newfoundland or the Islands of St. Pierre or Miquelon is prohibited.

14. The Minister may, upon special request to that effect, authorise the importation into Canada of any insect, pest or disease hereinafter specified, but for scientific purposes only.

15. The Regulations made under the San José Scale Act are repealed. *C. Gordon Hewitt, D.Sc., Dominion Entomologist, Ottawa.*

THE PRIMULAS OF THE EUROPEAN ALPS

(Continued from p. 24.)

SUBSECTION 7.—*Chamaejasme*. This subsection needs no descriptive note, as it contains but one species, and that the unmistakable *P. minima*. *P. minima* is a tiny plant; the leaves are some half an inch to an inch long, glossy dark-green, almost glabrous, firm, hard and leathery, without membranaceous margin; they are wedge-shaped (either broad or narrow), abruptly truncated, and sharply serrate. The scape is short or minute, shorter than the leaves, as a rule, and producing one or two flowers. These are of a bright rose-pink, white-throated, their lobes more or less deeply cloven, and of such size as to hide the rosette upon which each seems to lie (in one rare variety, *P. m. fimbriata*, the corolla lobes are gashed and ragged). *P. minima* is a species of the highest Alpine moorlands, whether on limestone or granite; its range begins in Thrace, and it reaches westward through Servia and Bulgaria to the Alps of Central and Southern Austria. (Heiligenblut!). It forms wide lawns, on which so thickly lie scattered the great stemless rosy flowers that one hardly likes to tread.

In cultivation it is too small and choice to be always found easy. My own personal theory is that all these lawn-forming high-Alpines greatly dislike careful cultivation in some isolated corner of the rockwork. I believe them to be very largely symbiotic, and their health to depend greatly on company. Accordingly, in prepared ground, of a sanded, peaty loam, cool but perfectly drained, I should plant such things as *P. minima* and its hybrids, with *Gentiana verna*, *brachyphylla*, *Favreri*, *Froelichii*, *pumila*, *Rostani*, &c., all in a dense association, only an inch or two apart, to form a close matting, in which each plant's roots should assist its neighbours.

With *P. minima* ends, then, the list of European species belonging to the Alpine section *Auricula*. Now that the species have been dealt with, it only remains for us to cope with the hybrids, whose multiplicity has long bred confusion in catalogues and a costly curiosity among collectors. *Reginald Farrer.*

(To be continued.)

ROCK-GARDEN AT WISLEY.

AMONGST the latest additions to the gardens of the Royal Horticultural Society, at Wisley, is a large rockery, which is now nearing completion. This rock-garden (see figs. 21 and 22) is being built by Messrs. Pulham & Son on a natural bank, with a north-west aspect, rising

bridge in the "wild" garden, looking up a ravine, through which flows a stream, with waterfalls, and crossed at various points by paths or stepping-stones. The stream issues from a fissure in the rock, tumbling down a cliff 15 feet high, and leading, by a series of waterfalls, to a large pool, and from thence gradually, by more falls, to the Lily-ponds below. The supply of water is



FIG. 21.—ROCK-GARDEN AT WISLEY: SHOWING THE ARRANGEMENT OF THE STONES NEAR THE SUMMIT.

from the "wild" garden to a height of 50 feet. The work has entailed much excavating of the hillside (see fig. 21) in order to procure a suitable undulating surface in which to arrange the stones in a natural manner. The rocks are composed of Sussex sandstone, some of the blocks weighing as much as 2 tons each. The finest view will be obtained from the old rustic, Wistaria covered

obtained from a well in the lower grounds, and is pumped by a petrol engine to a reservoir at the highest point of the rockery. The top of the rockery may be reached by the main Rose walk, and the descent may be made by several winding pathways through the rockery. A large moraine forms one of the chief points of interest, and below this is a bog-garden, watered from the



FIG. 22.—ROCK-GARDEN AT WISLEY: SHOWING THE SITE OF THE WATER-COURSE AND ONE OF THE CASCADES.

same source which supplies the moraine. A cave, with water, dripping into a small pool, from a natural spring, discovered during the excavations, is another pretty feature. Moisture and shade-loving Ferns are already planted in the cave, and all the completed parts of the rockery are being furnished with plants as quickly as possible. The area covered by the rockery is about 2 acres. The view from the top of the rockery includes a panorama of the gardens, with the Pine woods of Wisley Common in the background. It is only necessary to remove a few trees in order to open up another fine landscape to the left of that already mentioned.

NOTICES OF BOOKS.

THE LIBYAN FLORA.*

THE work, of which the full title and description are given below, is an important and valuable contribution to geographical botany, due to the enthusiasm of the late Dr. Ernest Durand and several other botanists whose names appear in this work. It fills a gap between the countries included in *Cosson's Compendium Flora Atlantica* and *Boissier's Flora Orientalis*, and is a most interesting connecting link, covering the country between Tunis on the west and the Egyptian Marmarica to the east. Neither the primary nor the secondary title is quite descriptive, but the geographical divisions adopted in the work give a better idea of the area under consideration. These are:—Tripoli, Fezzan, Kufra, Aujila, Cyrenaica (Barca), and Turkish Marmarica, extending through about 15° of longitude and 8° of latitude, from the sea nearly to the tropic. Sir R. Lambert Playfair's map to the *Bibliography of the Barbary States* is the only one given, and it is not satisfactory, as the divisions are not indicated, and there is no explanation. A suitable one would probably have been compiled had Dr. E. Durand, the principal editor, lived.

The whole area is nominally under Turkish rule, but the natives of certain parts are practically independent, and they are hostile to foreigners. Partly on this account, and partly from the absence of roads, many districts are still imperfectly known, more especially the remote groups of oases. Many botanists and travellers have contributed materials and data elaborated in the present work, including such well-known persons as Ascherson, Schweinfurth, Rohlf, Taubert, and Nachtigal. British contributors include Beechey, Denham and Clapperton, Dickson, Oudney, Richardson, Ritchie, Scott Elliot, and Wilkinson. Dr. Ascherson's brief summary of the labours of the various explorers is full of interesting facts, many little known, and some new.

From the chapter on the physical geography we learn that the greatest altitudes are from 1,000 to about 3,000 feet, while some districts in the interior are considerably below the level of the Mediterranean Sea. Immense areas are absolutely bare of vegetation. The rainfall is very small, or none, and shade temperatures of 100° to 110° are not uncommon.

The total number of species of flowering plants and Ferns recorded for the whole region is about 1,025, of which 64 are endemic, and these are, almost without exception, herbaceous plants.

* *Libyan Florae Prolegomena, ou Catalogue Raisonné des Plantes de Libye*, par E. Durand et G. Bérard, 1909. Paris: G. Bérard, Libraire-Éditeur, 17, rue de Valenciennes. 100 pages, 100 lithographed plates, very elaborate tables of the general geographical distribution of the plants composing the flora, and a copious bibliography, with names of the principal collectors, and the principal localities. Price 10 francs. (By George Bunyard, V.M.H.; edited by R. Hooper Pearson. (London and Edinburgh: T. C. and F. C. Jack.) Price 1s. 6d.)

† In this connection it may be mentioned that Dr. Durand was a grandson of Cosson, whose valuable herbarium and Paris Museum. We understand the work under notice was published mainly at his expense and it has been distributed gratuitously by his sister—Madame Jeanne Gallice, of Jussieu, Paris.

Specially interesting among the endemic plants are *Reseda odorata*, *Viola scorpioides*, *Hypericum Decaisneanum*, *Athamania Della Cella*, *Perraderia Garamantum*, *Cyclamen Rohlfsianum*, *Phelypea compacta*, *Orobancha cyrenaica*, several species of *Teucrium*, *Orchis cyrenaicus*, and *Ornithogalum Barba Capræ*. Not the least interesting is *Reseda odorata*, Mignonette, the native country of which was unknown until Dr. Taubert discovered it in Cyrenaica in 1887. The authors state that it is closely allied to *R. arabica* of Boissier, differing in the lateral lobes of the two large petals being divided almost to the base, in the deciduous filaments, and in the ovary being constricted at the base into a short stalk. The flora of the remotely-isolated groups of oases Kufra and Aujila is exceedingly poor, only 14 species being known from the former, and 20 from the latter, and there are no peculiar species. But it is not supposed that they have been exhaustively botanised. The population of Kufra is estimated at 700 and the number of its Date Palms at about a million. Aujila, in proportion to its area, is much more thickly populated, numbering some 12,000 inhabitants, and the number of Date Palms cultivated is given as 200,000. The Dates of these oases and of Fezzan are reckoned the best, and the varieties are very numerous. It is estimated that in Fezzan alone 300 varieties are cultivated. The Doum Palm (*Hyphæne*) was reported as growing in the oasis of Tedjerri, South Fezzan, by Lyon and by Denham, but recent travellers make no allusion to its presence, and the nearest known station for it is in the oasis of Yat, in about 20° 30' N. lat. *Chamerops humilis* was recorded as growing in Tripoli by Della Cella, 1817, but it has not been observed by subsequent travellers. The plates mostly represent endemic species, and they are excellent specimens of lithography by the well-known artist d'Apréval. W. B. H.

APPLES AND PEARS.*

THIS work is a valuable addition to the "Present-Day Gardening" series, and it is beautifully illustrated with eight coloured plates of notable varieties of Apples and Pears. The author, well known as a fruit nurseryman and one of the most successful exhibitors of fruit in this country, commences his book with an interesting history of Apples and Pears as grown in Great Britain, showing, amongst other things, how modern is our present system of market growing. The rest of the work is full of such practical instructions as only a grower of wide experience is capable of giving from his own knowledge. Some relate to the choice of positions for planting and the varieties which succeed best in different aspects; advice which is very useful for private gardens and orchards, in reference to which such points can be considered. But in any extent of planting the advice as to avoiding situations exposed to the north or east is applicable, except that early Pears on walls, the author says, should face the east, as they ripen too fast when the aspect is south or west. The chief recommendation as to soils is that of avoiding a stiff clay and a drier soil over chalk. The directions as to the preparation of the land for planting are of the usual description, while those relating to planting are more elaborate than most growers on a large scale are disposed to adopt. Mr. Bunyard is a strong advocate of the plan of leaving Apple and Pear trees for a year after planting before cutting them back, and, although he allows that dwarf trees planted before Christmas may be pruned in the following April, he insists on the advantage of leaving them alone for a year. "Trees pruned on planting," he says, "form little growth but plenty of fruit spurs, and these prevent a good sound foundation being laid for a vigorous tree." It is curious to notice

that advocates of cutting back in the fruit season give precisely the same reason for objecting to the postponement of the operation, declaring that the premature formation of fruit-buds results from leaving the young branches uncut until the second year. Other remarks on pruning are not likely to occasion controversy. While root pruning is recommended for bush and pyramid trees which make wood growth in excess, to the delay of fruiting, warning is given against the similar treatment of standard trees, as this would diminish their grip of the soil, and render them liable to be blown down by gales. The selected lists for Apples and Pears for large and small orchards respectively will be found valuable, and all the more so in consequence of the inclusion of a description of each variety and its time of ripening. There are separate lists of late keepers, of Apples suitable for northern districts, of Apples and Pears for orchard houses and pot culture, and for cordons. The sections relating to insect and fungous pests and their prevention and destruction by spraying and otherwise are the least, complete and satisfactory of any in the book, but that subject is so elaborate that its proper treatment requires a large work to itself. The thinning, gathering, grading, packing, and marketing of Apples and Pears, and the storing of keeping varieties receive careful attention, also grafting and budding. The calendar of orchard work will be found useful as a reminder when special operations have to be carried out, and housekeepers will be pleased with a remarkably full list of recipes for Apple cookery, many of which are not at all commonly known. This notice of the principal divisions of the book gives no adequate idea of the multitude of valuable suggestions which it contains. It should command a large circulation, not only among amateur gardeners, but also among professional fruit growers. A. Southern Grower.

EUROPEAN NURSERY CONDITIONS.

THE following critical account of European nursery conditions appears in *Farmers' Bulletin*, No. 453, issued by the U.S. Department of Agriculture, and dealing with "The Danger of Spread of the Gipsy and Brown-tail Moth through Imported Nursery Stock."

During the summer of 1909, and also again in 1910, Dr. Howard, who was in Europe principally to supervise the introduction of parasites for the gipsy and brown-tail moths into Massachusetts, made a careful inspection of the nursery regions of Holland, Belgium, and northern France, and also England.

The writer was in Europe, on a personal trip, in the summer of 1903, and made an examination of similar conditions in Holland, Belgium, and parts of Germany.

Holland probably presents the cleanest bill of health in the matter of insect pests, and particularly of the gipsy moth and brown-tail moth. This country enjoys a good inspection service, and all Dutch nurseries are carefully inspected twice each year, so there is probably less danger now from shipments from Holland than from any other country.

Belgium, in 1909, was in very bad condition, and the writer found the brown-tail moth more abundant there than he had ever seen it, hedge rows often being plastered with the winter nests. One such row, the writer noted, was only a few miles from the border of Holland, and within easy flight of the moths to large Dutch nurseries. Belgium has, however, since September, 1900, established an inspection service, applying only to nurseries exporting to America, and limited to field examination, twice yearly, of growing stock. While a distinct improvement, the inspection as indicated is still inadequate, as shown by much infested stock still coming to this country under official certificate.

In France, in 1909, Dr. Howard found no governmental inspection system of nurseries.

* By George Bunyard, V.M.H.; edited by R. Hooper Pearson. (London and Edinburgh: T. C. and F. C. Jack.) Price 1s. 6d.

The certificates attached to shipments of nursery stock received in this country from France were signed, as a rule, by men connected with agricultural schools, and probably, in the case of most of the certificates, the stock had never been seen by the expert. The general infestation of the stock coming from France to this country during the last two years made it abundantly plain that these certificates were absolutely valueless.

Dr. Howard found that nursery stock for export was, in many cases, grown in the vicinity of hedges and trees infested with the brown-tail moth and gipsy moth and other injurious insects not yet introduced into the United States, and no special precautions were being taken by the nurserymen to prevent the infestation of export stock by injurious insects. The brown-tail moth nests are so characteristic and noticeable that it is only by absolute indifference on the part of French exporters that they are packed for shipment without removal.

As a result of the agitation of 1909, the French exporters promised to take all possible precautions, and the French Ministry of Agriculture promised to found a governmental inspection service. The Chamber of Deputies, however, failed to pass the inspection law proposed by the Ministry of Agriculture, and, as already noted, the condition of the "inspected material" of 1910 was no better than in the previous year.

The director of agriculture of France, however, continued to urge the need of a plant-inspection service for export nursery stock, and early in November of 1910 this Department was advised, through the Department of State and the Ambassador of France to the United States, of the final establishment of such service. Later, the details of the law were communicated to Dr. Howard by Dr. Paul Marchal, who is charged with its execution.

Dr. Marchal's high reputation gives a guarantee of thoroughness, and a great improvement has actually taken place in the condition of the nursery stock coming from France. The severe infestation of 1909-10 has given place to moderate infestation of 1911, but there is still decided room for betterment.

In England, Dr. Howard found that, as in France, there was no governmental nursery inspection. The nursery conditions there are somewhat better than in France, but the brown-tail moth and other injurious insects, which might easily be imported on nursery stock, occur in England. The officials of the Government had the establishment of a governmental inspection service under consideration, and were willing to establish such a service, but stated that the demand for it must come from British nurserymen. An attempt was, therefore, made by Dr. Howard to get the nurserymen to ask for such service, and, while no action has yet been taken, it seems probable that the English Government will move in this direction.

ADENIUM OBESUM.

The plant of *Adenium obesum* (syn. *Nerium obesum*), reproduced in fig. 23, is growing in the Empress Botanical Gardens, Poona, India. Mr. P. G. Kanelkar, to whom we are indebted for the photograph, states that the plant flowers and fruits every year in the gardens at Poona. The species, which is very rare in gardens, has a thick, gouty stem, rapidly diminishing to short, stout branches, which, during the hot season (March to May in the Bombay Presidency), are gay with numerous rose-coloured Oleander-like flowers. The individual blossoms measure 2 inches across, and have very short stalks. During the rainy season, oblong, shining, leathery leaves appear crowded at the ends of the branches. *Adenium obesum* is a native of the sunburnt rocks of Aden.

THE ROSARY.

CULTURAL NOTES FOR JULY.

CONSTANT attention in tying and staking must still be given to "maiden" plants. Continue to thin out the side buds of all but the cluster types of Roses. Roses trained on walls and arches should be given copious waterings, and thorough syringings at night with clear water. Climbing Roses are more effective when the shoots are spread out, so that the trusses of bloom show to advantage, and this applies particularly to varieties of the *Wichuraiana* and climbing *Polyantha* types.

BUDDING ROSES.

July is the best month for budding Roses, although the work may be continued until the end of August. The operation is a very simple one. Both stock and bud should be in a suitable condition, and the operation done cleanly and quickly. In the case of standards, buds are inserted in from two to four side shoots, and it is well to select branches that are opposite, or that form a triangle with each other. If the directions in my previous advice have been followed,

black, another should be inserted as near to it as possible. Avoid cutting away any growth from the stock just previous to inserting the buds, as this will check the flow of sap for a few days, with the result that the bark will not lift easily. If mildew puts in an appearance, use a weak solution of Cyllin soft soap freely.

ROSES UNDER GLASS.

The main batch of Roses in pots should be afforded all the air possible, half plunging them in the open, placing a layer of soot at the bottom of the hole to deter worms from entering the drainage holes. If they are plunged in soil, on concrete or cement bottom, this will not be necessary; but in other cases worms are certain to gain access if precautions are not taken. Afford the plants a sunny position, and see that they are not over-watered when the wood begins to mature. The present time is equivalent to autumn as regards pot Roses that are intended to be forced early, and they need a period of rest. This applies to all Roses with the exception of *Wichuraiana* varieties and extra strong standards which must not be checked, but encouraged to make growths of considerable length. These may be helped by a free use of liquid manures. A little judi-



FIG. 23. ADENIUM OBESUM FLOWERING IN THE EMPRESS BOTANICAL GARDENS, POONA; FLOWERS ROSE-COLOURED.

and only the most favourably-placed growths allowed to develop, they should be in a good condition for budding during the present month. As a rule, the bark of dwarf stocks may be lifted easily for a much longer time than in the case of standards, unless the shoots of the latter have been stopped when about 2 feet long. If the prickles may be snapped off easily it is a fairly good guide for the time to commence budding. Much damage is often done by inserting the point of the budding knife too deeply, thus harming the wood beneath. As far as possible, the bud should be in the same condition of growth as the stock, and the small portion of wood at the back of the bud should always lift easily. Readers will be well acquainted with the operation as a whole, but much depends on getting it done quickly, and seeing that no part is dried or bruised. Many buds fail to grow through careless tying. It is especially necessary to secure the bud firmly and well down upon the wood of the stock. The tie may be loosened later when the bud and stock have united. Should the bark not lift easily, water the plants well, and try again in a week's time. Choose the buds from healthy plants that have produced the best flowers; also, when budding climbers, select those from the more vigorous shoots. If the bud in course of time appears

cious pruning should be practised to encourage the plants to make a number of long growths rather than a quantity of bushy wood, cutting away most of the shoots that have already flowered. Cuttings rooted under glass may now be potted on, but great care is needed not to break or bruise the roots. A compost consisting of leaf-soil and loam, with a very little coarse sand added, will be suitable. After potting, they may be given the same treatment afforded established plants; but shade and syringe them for a time until they have recovered from the disturbance. Roses in pots that were budded in the spring may have the stocks cut back to the bud to encourage the latter to develop. By this treatment they will make wood that will be of more service than a dormant bud when growing them on next spring. Practice.

GARDEN PARTY AT PRESTED HALL. MR. N. N. SHERWOOD, of Messrs. HURST & SON, entertained a large party on Saturday last at his beautiful place near Kelvedon. The primary object was to give Messrs. HURST's staff an opportunity for their annual cricket match and sports, but Mr. SHERWOOD extended the invitation to a large number of friends. The party numbered nearly 300, and, favoured with fine weather, everything passed off most successfully.

The Week's Work.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

GLOBE ARTICHOKEs which have finished their crop should have the old stems removed, and, if the weather continues dry, a good watering at the roots should be given. Plantations made this spring should also receive liberal waterings.

LATE PEAS.—The latest-sown Peas will be ready for the sticks to be placed in position, and this should be done without delay. The ground between the rows may be mulched with a layer of farmyard manure, and afterwards receive a thorough drenching of clear water, which will keep the ground cool and moist, thus lessening the danger of mildew attacking the plants. If the weather continues dry, the crops of Peas generally will benefit by this treatment.

SCARLET RUNNERS.—Scarlet Runners should receive the same treatment as recommended for Peas. If farmyard manure is available, a thorough mulching and subsequent watering should be given as soon as possible. Stop the growths frequently when the plants have reached the top of the sticks, in order to promote the growth of side shoots and flowers.

SPINACH.—A good sowing of winter Spinach should be made now, and another at 10 days later. Ground from which an early crop of Peas has been cleared should be selected for these sowings. Fork the soil lightly, and make it as fine as possible before the drills are drawn at 18 inches apart. If the ground is dry, water should be poured into the drills the night previous to sowing the seed. When the young plants are large enough, they should be thinned to 3 inches apart. Later, stir the surface soil frequently with the Dutch hoe to promote a loose layer of dry earth on the top, which is the next best thing to mulchings for retaining the moisture in the soil during dry weather.

AUTUMN-SOWN ONIONS.—The crop of autumn-sown Onions will now be ready for harvesting. Allow the bulbs to remain exposed to the air as late in the season as possible, but as they need to be protected from rain, an open shed should be selected. If they are placed on hurdles or an open staging which allows the air to pass freely amongst them, Onions may be kept in a good condition late in the autumn.

LEEKs.—Further plantations of Leeks may be made now to furnish a supply of stems for use during the spring months. The land for this crop should be well manured, and the plants put out in rows formed at 18 inches apart. If drills are drawn a few inches deep, and the Leeks planted with an ordinary dibber, the soil may be worked into the drills as hoeing proceeds later in the season. Give liberal supplies of manure water to Leeks planted early in the season, and afterwards hoe the ground freely between the rows to keep the surface soil loose.

ENDIVE.—Endive sown a month ago is now ready for transplanting. A border facing east should be selected, allowing a distance of 15 inches apart either way between the plants, to permit of space for hoeing, which should be carried out frequently. Another sowing of Batavian Endive should be made now to furnish leaves for use during the winter months.

LETTUCE.—A sowing of Lettuce to furnish a supply of plants for early winter use should be made about the end of July. The seedlings should be transplanted, as soon as they are large enough, to some sheltered border, where protection may be afforded during November. Hardy White Cos, Brown Cos, All the Year Round, and Maximum are reliable varieties for this sowing. If the same varieties are sown a week later, and the seedlings planted, when large enough, in cold pits or frames, they will furnish a supply of Lettuce through the greater part of the winter. At Frogmore, we make several sowings of these varieties in July and August for use during September, and again in September to furnish plants early in the spring.

THE HARDY FRUIT GARDEN.

By W. HIRLEY WARRIN, Aston Clinton Gardens, Buckinghamshire.

STRAWBERRIES.—Fresh plantations of Strawberries may now be made with every prospect of success. Early-layered runners should, if possible, be planted, but they should be severed from the parent plant for a few days previously in order that they may not experience too great a check. Should dry weather, or other unfavourable conditions prevent planting, the layers should be stood in groups or placed in a cold frame until such time as the work can be carried out. It will be an easier matter to water and otherwise care for the plants under these conditions than when they are spread over a large area, besides decreasing the risk of losses caused by excessive heat or drought. Established beds of Strawberries from which the fruit has been gathered should be cleared of all weeds and runners, but do not remove any of the green foliage—except such as may have been damaged whilst the fruit was being gathered—however old it may be. Denuding the plants of foliage is the surest way to check the maturing of the crowns upon which the next season's crop depends. During dry weather the beds should be kept thoroughly moistened by frequent applications of water.

GENERAL REMARKS.—Stop, thin, and regulate the summer shoots of all wall trees. Apricots, Peaches, and Nectarines should be examined carefully, and all superfluous shoots removed. During hot, dry weather the roots should receive a thorough soaking of water, and, if not done already as advised in a former calendar, a suitable mulching should be applied, as heavy waterings must soon be withheld, especially if the soil is of a heavy, retentive nature. Continue the summer pruning of Apples, Pears, Plums and Cherries; the fore-right shoots which have been shortened already may soon be cut close to the spur, as there will now be little danger of the buds breaking into growth, and the pruning will allow more light and air to reach the remaining buds and spurs. Continue to give the trees an occasional syringing, for it is an important detail and must not be neglected as the trees must be maintained in a clean and healthy condition. The summer pruning of standard, espalier, pyramid, and bush trees must still be practised regularly, removing carefully all superfluous wood. With a light crop of fruit most kinds of trees are making a vigorous growth, hence it is more than ever desirable that all unnecessary shoots should be promptly removed, thereby admitting the necessary light and air to those that remain. Wherever the autumnal light is present, either on the stems or main branches of the trees, immediate steps should be taken to check or destroy the pest. An excellent and safe remedy to employ at this season is a mixture of soft soap and linseed oil, made into a thick paste and applied with a stiff brush. This pest is often overlooked, or its destruction neglected at this time of the year, but if a careful watch is kept now and remedial measures employed, the pest may be prevented from spreading. Outdoor Grapes should be finally thinned, if necessary, and the laterals of the vines shortened to one joint. The old canes of summer-fruited Raspberries that have ripened their crops may be removed entirely; if allowed to remain they will deprive the plant of considerable nourishment, besides preventing much light and air reaching the young shoots; unripened canes seldom fruit satisfactorily, and are more subject to damage by severe frosts.

PLANTS UNDER GLASS.

By JAMES HEDDER, Gardener to LEONARD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

TROPICAL NYMPHAEAS.—We have now a beautiful display of Nymphaea pulcherrima growing in an outside tank, in which the water is always maintained, approximately, at a temperature of 70° Fahr. It is a small tank, but there are frequently 12 or more flowers expanded at the same time. I mention this to induce others to adopt our method of culture. In making a start, the first thing to do is to select a warm site, a position facing either to the south or west should be chosen. As the water must be warmed, the tank will need to be

furnished with pipes connected with the hot-water service, and this is most easily done by building it close to one of the glasshouses. We do not, even in winter, place a cover over the tank, as the water is warmed sufficiently by the pipes to ward off frost. Nine inch brickwork, cemented on both faces, and over the bottom, affording a depth of 2 feet at the most, is all that is needed. In another tank we have planted Nymphaea stellata, Berlin variety, and the growths are just coming up; this tank also is not covered, but we have others which are covered with a span-roofed frame, in which N. stellata Berlin variety and the Gunnersbury form of N. gigantea are cultivated. In these the plants are flowering freely, the flowers being of unusual vigour. Black Aphid is sometimes troublesome on the plants, and the pest needs to be destroyed at an early stage. So far this season we have scarcely seen the Black Fly, although last year it was very prevalent on the Nymphaeas.

STANDARD DECORATIVE PLANTS.—It is well to select a few promising young plants of such kinds as Codiaums (Crotons) with single stems, and train them as standard plants, although not necessarily with bushy heads. In the case of such as C. Warrenii and C. Johannis all that is needed is a tall, single stem to allow the long, pendulous leaves to display themselves to advantage, but such sorts as C. angustifolius and C. Cheloni do best when trained to three or four shoots. Varieties with broad, massive foliage, such as C. Reidi (the finest of all Codiaums when well coloured), and C. Baronne James de Rothschild (the most enduring decorative variety known to me) also do well trained to single stems. See that such single-stemmed plants as Thyracanthus rutifolius have care bestowed upon them. These will now thrive well in a light, airy house, such as the intermediate stove. Where the greenhouse proper is not now overcrowded or even filled at this season, it may be used as an intermediate house for the time being. In this way it is possible to secure a harder and more enduring growth in the plants that will stand them in good stead when the flowering period arrives. Standard stove plants are most useful in special decorative groupings later, and careful attention at this season of the year will be amply repaid by fine specimens.

APHELANDRA AURANTIACA ROEZLII.—If raised from seed, as previously advised, plants of this species should now be growing into nice specimens. It is surprising how well this plant will flourish in dwelling-rooms in the winter, forming an attractive object.

FRUITS UNDER GLASS.

By E. BECKLEY, Gardener to the Hon. VICARY GIBBS, Aidenham House, Herefordshire.

MELONS.—Where the fruits on Melons growing in frames are showing signs of ripening, a free circulation of air should be permitted and the supply of water at the roots diminished gradually. The fruits need to be well exposed to the light, and syringing should be discontinued. It is an advantage to circulate a little warmth in the hot-water pipes at night time, as this will allow the ventilators to be opened a trifle, thus benefiting the plants, besides improving the flavour of the fruits. Melon plants intended for late cropping in houses will need to be kept growing sturdily. Should the house be not yet available, the plants should be re-potted into 6-inch pots, using a rich rooting-medium. Afford water at the roots carefully after the re-potting. Keep the foliage in a healthy condition, syringing as often as is beneficial. Expose the plants fully to the sunlight, excepting for a day or two after potting, at which period the plants should be shaded with a thin sheet of paper during the hottest part of the day.

PINEAPPLES.—Newly-potted suckers of Queen Pines will need very careful watering, as an excess of moisture may cause the soil to become sour. If the compost is in a proper condition at the time of potting, and the pots are plunged in a bed of leaves or tan having a bottom-heat of about 85° to 90°, the plants will not need much root-watering, provided the necessary attention is paid to damping down and syringing overhead. Pots of about 6 inches in diameter will be found a convenient size, and the compost may consist

almost wholly of loam, but it needs to be of fibrous character. The pots should be well drained, and the suckers potted firmly well down in the receptacles. The disuse of fire-heat entirely is not to be recommended, as it is necessary to have a free circulation of air at night-time.

STRAWBERRIES.—The perpetual-fruited Strawberries now being grown in 6-inch or 7-inch pots to provide a succession of berries in the autumn will need manual assistance, and strict attention to watering. Keep the surface of the soil free from weeds, periodically remove the runners and flower spikes, and either syringe the plants each morning and night, or damp with a rose-can the layer of ashes on which they are stood to keep the surroundings moist and cool. The plants need a position that is partially shaded from sunshine. St. Joseph and St. Antoine de Padoue are two excellent varieties of perpetual-fruited Strawberries. The potting of newly-layered runners of the ordinary type intended for early forcing into their fruiting pots should be carried out as soon as possible, and the plants either stood on battens or sifted cinder-ashes to prevent worms from entering the pots. Continue to layer further runners if these are required.

CUCUMBERS.—The present is an ideal season for Cucumbers, because very little artificial heat is required. Plants in full bearing will need frequent attention in thinning, stopping and tying the shoots, and in removing all fruits of an unsatisfactory shape. The roots will need an abundance of moisture and rich surface-dressings frequently. If the plants are growing in houses, the paths should be damped down early each evening with strong manure water. Sow another batch of seeds in a gentle heat, placing them singly in small pots. These plants will furnish an autumn supply.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of Haddington, K.T., Edinburgh, East Lothian.

THE SEASON.—In this district we are passing through a second period of drought accompanied with great heat. The effect can be seen in the autumnal flowers and shrubs commencing to bloom before their usual season. Dahlias, for instance, are now carrying more flowers (July 15) than was the case three weeks later last year, and some perennial plants that were raised in spring from seeds for the purpose of flowering late in autumn, appear likely to expend their energy long before that time. In all cases where it is possible the reserve plants should be prevented from blooming by pinching off the more forward buds. A greater number of reserve plants will be required this season than usual for the filling of blanks. *Aconitum Napellus* very soon loses its attractiveness after its flowers are past, and if the plants are in conspicuous positions the stems should be cut to a few inches from the ground and reserve plants of some other kind placed amongst them, such, for instance, as China Asters or early flowering *Chrysanthemums* like *Horace Martin*. Self sown plants of annual *Calceolarias* are also useful for making up blanks. They have a somewhat weedy appearance, but this is not notice-able when they are arranged with other plants.

HOLLYHOCKS. The disease has already appeared upon these plants, and the worst leaves should be picked off and burnt before the fungus matures. So long as the stems are not seriously attacked the plants will not suffer greatly from the loss of the lower leaves, and it is not a difficult matter to hide the bare stems with other vegetation. The positions the plants occupy appear to have a considerable effect on their liability to disease, for instance, in some parts of the garden here Hollyhocks are almost free from the disease, whilst in others they are attacked badly every year.

POPPIES.—A collection of these fugacious flowers may very well be selected for the garden borders. At the present time a considerable number of Poppies are in flower, and they are all attractive. Papaver album possesses an extensive range of flowers both in single and double varieties. The plants flower for months together provided the seed capsules are removed

as soon as the petals fall. A double variety of *P. somniferum*, known as cardinal, is perfectly brilliant, whilst the salmon-rose form of the same species is equally desirable on account of its soft colouring. There are three species, all with Orange-coloured flowers, which provide very uncommon shades. These are respectively *P. piosum*, *P. rupifragum* and *P. aculeatum*. The exhausted stems of these should be cut down from time to time in order to allow new growths to appear and furnish a succession of flowers. All these Poppies can be raised with ease from seed. In addition there is the large flowered *P. bracteatum* and *P. orientale*, which after the first resplendent display in early summer produces a few blooms throughout the following months, provided always that the old stems and seed vessels are removed from time to time. These two plants are propagated by means of pieces of roots. The species of *Meconopsis* are less easy to grow than the true Poppies, unless it is that they prefer a damper and stronger soil. *M. Wallichiana* really does need this, and probably *M. integrifolia* also. Both species are increased from seeds. Some seeds of *M. integrifolia* sown last autumn grew at once, but some lay dormant until June, thus furnishing another instance of the desirability of keeping pans or pots that have been sown with seeds of perennial plants for a longer time than inexperienced cultivators might think desirable.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

THE SEASON.—The weather is still of a tropical character, and much extra time has to be spent in damping and watering. *Cattleyas*, *Laelias*, *Dendrobiums*, and all warm-growing, sun-loving Orchids are showing by their healthy-looking growths how much they enjoy the warm air and bright sunshine. But the great heat renders it very difficult to keep the cooler-growing species cool enough, ventilation only making matters worse by causing a dry atmosphere. Up to the present, the nights have been somewhat cool and refreshing; however, and with the ventilators left open, the plants get the full benefit of what little dew there is, and the cool night air in which to recuperate any loss sustained by reason of the excessive heat during the day. The maintenance of a suitable atmosphere in Orchid houses during this tropical weather is very important. No matter how well the plants are treated in other ways, they will not continue in a satisfactory condition unless a proper atmosphere is maintained. To say that a house must be damped at a given time, and ventilated at another, is a method of teaching that would never make anyone a good cultivator of plants. Personal experience in and about the houses, strict observation of the plants, and learning the lessons that only the plants themselves can teach are the surest helps to success. I will not venture to say that an atmosphere that is pleasant to the senses is always the best for the plants, but, at the same time, one can usually tell on entering the house whether it has that buoyant feeling that is necessary, or whether it is too hot and too moist, or, on the other hand, dry and draughty from too much air. The proper atmosphere is that in which the air is continually changing, the air currents being kept in accordance with the conditions out-of-doors; but a suitable temperature, according to the condition and state of growth of the plants; and duly charged with moisture. During bright, hot weather a very early start should be made in the morning, damping down the houses and syringing the plants, whilst the final damping for the day should be deferred for an hour or so later than usual. It is yet too soon to diminish the shading on any of the houses, but any plants needing more sunlight may be moved to a position where this can be admitted without injuring other plants. Should a change take place to cooler and damper weather a little more fire-heat would again be necessary, as it is very important to ventilate even the warmest houses at night as well as by day.

WATERING.—There is no more important operation connected with Orchid culture than watering, and even the most experienced grower needs to be very careful when carrying out this work. With a clear air and bright sunshine, care must be taken that the moisture applied to

the roots, as well as the atmosphere, is adequate for the needs of the plants. During the season of growth the terrestrial Orchids require proportionately more water at the roots than the epiphytall kinds. It is by attaining the habit of close observation that a correct knowledge can be acquired of what quantity of water is needed by any Orchid, and especially during its season of growth. Orchids may not appear to suffer from careless watering, differing in this respect from many other plants, but a time of reckoning will come, and this probably when it is too late to arrest the backward tendency. Plants that are now actively growing must not be allowed to suffer from want of moisture, either atmospherically or at the roots, yet if the latter are treated to excess they will be found in a decayed state at potting time, and the effects of this will be seen in the weak growths the following season.

THE FRENCH GARDEN

By PAUL ACIATIAS.

OLD MANURE BEDS.—The materials of the old manure beds are not greatly retentive of moisture, and unless a plentiful supply of water is available, good results cannot be obtained in a dry season. Celery, Carrots and Cauliflowers must be watered daily till the plants are well established and their roots have come into direct contact with the manure.

MELONS.—The hot weather has suited Melons splendidly. Ventilation is afforded the plants both day and night, and the glass may even be removed entirely from the earliest batch. The lights must, however, be stacked close at hand as it is necessary to replace them in dull and windy weather. Water is given regularly at least three times weekly, and always in the early mornings. The pruning will now consist of removing the unnecessary shoots and decayed leaves. A second batch of fruits may be obtained from healthy plants, and, with a little extra care, a good set may be obtained late in August or early in September. The fruits are examined two or three times daily with a view to cutting those which are ripe as they need to be disposed of quickly, being bad keepers. The fruits are stood in a cold place for a few hours before they are packed; they are then wrapped in paper and placed in flats or apple boxes, stalk upwards, some woodwool or short hay being placed between each fruit to prevent bruising.

CUCUMBERS.—Like Melons, Cucumbers have done well this season, and a good supply of fruits is still obtainable. The pruning is carried out carefully and regularly, every side shoot being cut back to the first leaf. This crop, in most cases, is more remunerative and reliable than the Melon crop, for there is nearly always a good demand for Cucumbers.

TOMATOS.—Tomatos planted in frames late in April are now ripening their fruits, and the leaves have been thinned to allow the sunshine to reach the fruits. The lights have been removed, and water is given freely. Tomatos growing in the open should now be stopped at one leaf beyond the last truss of fruits. There are as many as seven trusses on each plant. A deficiency of moisture in the soil at this stage will render the fruits liable to cracking.

CELERY.—The first batch of Celery may now be bleached by spreading mats over the plants for a period of eight or ten days, when they are large enough for marketing. The last batch of Celery is now being planted in its final quarters to furnish a supply of stems after Christmas.

STRAWBERRIES. Two-year-old Strawberry plants intended for forcing should now be potted in 6-inch pots employing the compost previously prepared for the purpose. They should be placed closely together in frames where they will be wintered. The roots must be kept moist to prevent an attack of mildew.

MANURE.—The stock of manure to be used next spring is now being collected as fast as it can be obtained. If it is stacked in a dry state and kept dry, little fermentation will take place, and the best qualities of the manure will be preserved intact.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants, for analysis, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be sent to the EDITORS, 41, Wellington Street, Covent Garden, London. The Editors are not responsible for any opinions expressed by their correspondents.

Special Notice to Correspondents.—The Editors do not undertake to pay for contributions, or to return unsolicited communications or illustrations, unless by special arrangement. The Editors are not responsible for any opinions expressed by their correspondents.

Editors and Publisher.—Our Correspondents would obtain from the Editors, or from the Publisher, all the information they require for their communications, and they would be glad to receive and to select photographs or drawings, suitable for reproduction, or gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JULY 22—Paisley Florist Soc. Sh.

SUNDAY, JULY 23—Nat. Carnation and Sweet Pea Soc. Exh. at R.H.S. Hall.

WEDNESDAY, JULY 26—Carnation and Sweet Pea Soc. Sh. at Sophia Gardens (9 a.m.). Bishop's Waltham Fl. Sh. Irish Gard. Assoc. meet. Chesterfield Fl. Sh. Leamington Fl. Sh. (2 p.m.). Haywards Heath Fl. Sh.

THURSDAY, JULY 27—St. Ives Fl. Sh. Yorkshire Agric. and Hort. Sh. at Rotherham (8 days).

FRIDAY, JULY 28—Southampton Carnation and Sweet Pea Sh.

AVERAGE MAX. TEMPERATURE FOR THE ENSUING WEEK deduced from observations during the last Fifty Years at Greenwich—62.5°.

ACTUAL TEMPERATURES—London—Wednesday, July 19 (6 P.M.) Max. 50° Min. 54°.

Gardeners' Chron. Office, 41, Wellington Street, Covent Garden, London—Thursday, July 20 (10 A.M.) Lat. 51.33° Temp. 59° Weather Sunshine.

Provinces, Wednesday, July 19 Max. 74 Cambridge; Min. 59° Ireland N.W.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—Choice Imported and Established Orchids in variety. Dwarf Japanese Trees, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Soils and Crops.

The report on the *Agriculture and Soils of Kent, Surrey and Sussex* by Messrs.

Hall and Russell is a remarkable book, and will, as we believe, mark an epoch in British agriculture. Though Mr. Hall, in his prefatory remarks, modestly disclaims for this work the title of a finished survey, and prefers to regard it as a sketch, yet, so great is the quantity of information that it contains and so serviceable is that information to the farmer living within the three counties, that the book well deserves the more ambitious title.

The point of view adopted in the report is briefly as follows:—A given area of agricultural land—that of the three counties already named—is marked out for investigation. The geological char-

acters of this area are known. If it is found that mechanical and other analyses of soils from a large number of typical fields over this area show common characteristics, and if it is found that these analyses distinguish the soils of one geological formation from those of any of the others, then it may prove possible to arrive at a rational explanation of the general geographical distribution of the various agricultural industries to which the several districts of that region are devoted.

The practical applications which may follow from such conclusions, which we may add the authors have demonstrated to be sound, are numerous. In the first place, they enable the authors to make recommendations as to the nature of the manures to be applied to the soils which overlie the several geological formations. Throughout such and such an area, overlying such and such a geological formation, a definite system of manuring may be prescribed with confidence; in another area the use of other manures may be recommended. Hence the farmer has only to determine the geological position of his land by reference to the large scale map of the Geological Survey and then to turn to the pages in the report which deal with the manuring of a crop commonly taken on the land of that region to ascertain whether his system of manuring conforms with that recommended by Messrs. Hall and Russell.

This is but one of the practical services which the survey serves. Again, a grower who contemplates taking up some special branch of agriculture, fruit growing for example, has, through the medium of this report, a summary of the experience of fruit growers in general throughout the region. He can turn to the map illustrating the present geographical distribution of this industry. He can trace thereon the relation which this distribution bears to soil, aspect and rainfall, and can then form a pretty sound judgment as to whether the land which he contemplates putting under fruit is physically adapted for that purpose.

In making the foregoing rapid survey of what we conceive to be the guiding idea of the work, we have, for reasons of brevity, omitted reference to many other factors which come in in determining the kind of farming which is practised in a given region. These factors have, of course, not been lost sight of by the authors, who discuss not only the geological formations met with in the area, but also the general physical characteristics of the region, which characteristics—altitude, aspect, water supply—are of no less importance to the farmer than the geological origin of his soil.

Perhaps the most fascinating, as well as the most generally instructive feature of the report is the series of maps depicting what we may call the density of distribution of the agricultural industries of the area and including arable land, grass land, cattle, dairy cows, sheep in summer, woodland, as well

as special crops, namely, fruit, Potatoes, Hops, Lucerne, Barley, Wheat, Mangolds and Turnips.

We can best illustrate the thoroughgoing way in which Messrs. Hall and Russell have performed their work and the usefulness of the results which the report presents by giving in brief outline their main conclusions with respect to one crop, for example, fruit.

Of the three counties, Kent stands prominently foremost as a fruit-producing region. Its Cherries have earned almost world-wide fame, and its Strawberries are nearly as well known. Yet a glance at the map shows that the fruit-growing industry is by no means generally distributed over the county. Comparison of this map of density of production with the geological map shows that the cultivation of fruit is only carried on to any large extent on certain soils. These soils run from S.E. of London on the Thanet sands and the chalk as far as the Medway Valley. West of Maidstone, the lower green sand on either side of the Medway Valley bears also numerous orchards which are driving out the Hops. Following that valley, fruit may be traced as a considerable crop, along the alluvial soils and even the sands and clays of the High Weald, but where the greensand stops there the large breadths of orchards stop likewise. Eastward of the Medway Valley is the rich area of fruit land—formed of the deep loams of the Thanet sand, chalk and brick earth—from Rochester to Canterbury. Beyond Canterbury it follows the outcrop of the Thanet sands. Broadly speaking, fruit and Hops run together, fruit preferring, however, the lighter soils. Strawberries, in particular, follow the lighter soils and occupy large regions of the Thanet sands of North Kent. In East Kent the Nuts, common in the west—especially on the tops of the hills where the ragstone (lower greensand) lies near the surface—are replaced almost entirely by Cherries, which thrive on a substratum of chalk.

The distribution of orchards having been traced, methods of cultivation are considered, the compositions of the characteristic fruit soils, brick earth and Thanet beds are given, and the manurial requirements of the soils are detailed.

As we have indicated, we regard this report of Messrs. Hall and Russell of the highest importance. It brings together for their common service the isolated experience of farmers and growers. It adds to that experience the requisite scientific knowledge gained from comparative analyses of soils to provide a test of its validity and to enable any individual to improve his practice if need be. In conclusion, it remains to be stated that the report is issued by the Board of Agriculture. We congratulate the Board on its public-spirited enterprise in persuading the Treasury to find the money, without which this copiously-illustrated volume could not have been produced except at a cost prohibitive to many of those—the practical growers—for whom it is intended.

* *Agriculture and Soils of Kent, Surrey, and Sussex*, by A. Hall, F.R.S., and E. J. Russell, (Board of Agriculture) London, 2s. 6d.

MECONOPSIS DELAVAYI.—There is little doubt that the limit of the genus *Meconopsis* has not yet been reached by botanical explorers, and that, as exploration is carried further into the mountainous regions of N.-W. Yunnan and S.-E. Tibet, we may expect many new species to be discovered. Two new species have been found there during the past few years, *Meconopsis speciosa* Prain, and *Meconopsis Forrestii* Prain, both valuable plants, especially the former

species, for cultivation in the rock-garden. Seed has also been secured of a few of the best-known species. Concerning *Meconopsis Delavayi*, Franchet (see fig. 24), Mr. GEORGE FORREST writes as follows:—"This beautiful little plant was first discovered by Père DELAVAY, in 1884, on the eastern flank of the Lichiang Range, N.-W. Yunnan, at about 12,500 feet altitude. In height, it varies from 5 to 9 inches, reaching the latter

height in the most favourable situations. The roots are long, thick, and fleshy. Leaves all radical, glaucous; petioles long, 8 to 10 cent., limb lanceolate, 2 to 3 cent. long by $1\frac{1}{2}$ to 2 cent. broad; obtuse, either attenuated towards the base or cordate, glabrous on upper surface, with the under surface bearing a few ruddy hairs. Peduncles stout, sparingly hirsute towards the apex; flowers solitary, semi-pendulous, $1\frac{1}{2}$ to 2 inches in diameter, colour deep, satiny, purple-blue. Sepals glabrous; petals four, occasionally five,



Gardner.

Photography by George Forrest.

FIG. 24.—*MECONOPSIS DELAVAYI* GROWING WILD IN CHINA: FLOWERS PURPLISH-BLUE.

ovate, obovate, or oblong; filaments filiform, of the same shade as the petals; anthers deep orange. Mature capsule, erect, 2 to 3 inches in length by $\frac{1}{2}$ inch diameter. This charming species flowers in June and July, and there is little doubt of its proving perfectly hardy in this climate. The flowers, with their shining, deep-coloured petals and orange-coloured anthers, form a delightful contrast to the glaucous green of the foliage and scapes. The species is gregarious, and delights in open, sheltered situations. The first specimens found by me formed small, scattered colonies along the base of a series of ragged limestone cliffs, at about 11,000 to 12,000 feet. These were growing on poor, patchy pasture, in the shelter of dwarf bushes, and under the lee of rocks; the soil was composed of limestone, gravel, and chips of varying size. The roots of the species are thick and fleshy, and, in this exceedingly free formation, penetrated to quite a considerable depth, in many instances as much as 12 to 18 inches. Later in the season, the species was met with in greater abundance at a higher altitude (13,000 to 14,000 feet), growing amongst heavy, Alpine pasture, in conjunction with *Meconopsis integrifolia* and *M. Forrestii*. One peculiar feature of *Meconopsis Delavayi* is the remarkable elongation of the scape during the maturation of the capsule; some seen were as high as 2 feet, or nearly four times the normal height of the scape during the flowering period."

NATIONAL CARNATION AND PICOTEE SOCIETY.

—The annual exhibition of the National Carnation and Picotee Society will be held in the Royal Horticultural Society's Hall, Vincent Square, Westminster, on Tuesday, July 25. Particulars may be obtained from Mr. T. E. HENWOOD, the hon. secretary and treasurer, 16, Hamiltan Road, Reading.

ROYAL GARDENERS' ORPHAN FUND.—The secretary of this fund, Mr. BRIAN WYNN, informs us that on and after Monday, July 24, the office will be at 19, Bedford Chambers, Covent Garden, London, W.C., instead of Milton House, Surrey Street, Strand.

BRITISH PTERIDOLOGICAL SOCIETY.—The annual meeting of this society will be held this year at Barnstable, on Monday, August 7. Members will proceed to Barnstable on the previous Friday, meeting in the evening at the "Golden Lion" Hotel, which will form the headquarters of the society. Arrangements will then be made for the fern-hunting excursions. The Hon. Secretary is Mr. CHAS. T. DREYER, 11, Shaa Road, Acton, London, W.

NATIONAL AMATEUR GARDENERS' ASSOCIATION.

—This association held its annual exhibition on the 15th inst. in the Alexandra Palace, occupying the conservatory and the hall adjoining. The president's gold medal was won by Mr. J. G. HARDY, of Upper Clapton, for a group of cut blooms from zonal *Pelargoniums*.

A BATTLE OF FLOWERS.—A Battle of Flowers was held on the 15th inst. on the spacious Pageant Ground of the Festival of Empire at the Crystal Palace. The battle was opened by Lady JANE KENNY-HERBERT, and MURIEL LADY HELMSLEY presented to the winners hand-painted banners bearing designs taken from the Pageant episodes and worked by the pupils of the Royal School of Art Needlework. The first prize was shared by a Queen Elizabeth litter of pure white, with green festoons, for which inhabitants of Westminster were responsible, and an ox-wagon organised by residents of Sydenham, the third prize being awarded to a Canadian car from Putney.

THE BOARD OF AGRICULTURE AND FISHERIES desire to draw attention to the reduction in price of the sectional volumes of leaflets useful to gardeners, farmers, teachers, &c. The reduced price of a full set of the 12 volumes is 9d., post free. Large quantities of any particular volumes, for distribution to allotment holders or schools, may also be obtained at the reduced rate of 9d. per dozen copies, carriage paid. Remittances should be in the form of cheques, money or postal orders made payable to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W., and crossed "Bank of England." Letters so addressed need not be stamped.

THE CO-OPERATIVE FESTIVAL.—The Co-operative Festival, which has always been held at the Crystal Palace, will this year take place at the Hampstead Garden Suburb on Saturday, August 26. It is organised by Co-partnership Tenants (Limited), in conjunction with the National Co-operative Festival Society. A flower show will also be held, for which prizes are offered. A feature of the festival will be the competitions of co-operative choirs from all parts of the country for the Earl Grey and other shields.

HORTICULTURAL COLLEGE, STUDLEY CASTLE.

—The Countess of WARWICK has issued invitations to the British Medical Association to an "At Home" at the Horticultural College, Studley Castle, on the 27th inst. The students will give a pastoral play on the occasion, and the departments of the college will be open for inspection.

NEW PARK AT HULL. A new public park at Hull, the gift of Mr. CHRISTOPHER PICKERING, J.P., was opened by Mrs. PICKERING on the 15th inst. The site occupies some 50 acres, and is situated in a part of the city occupied largely by those engaged in the fishing industry.

NORTHERN FRUIT CONGRESS AND SHOW.

A fruit conference, similar to the Congress which proved so successful last year at Hexham, has been arranged for November 15 and 16, and will be held in the Town Hall and Corn Exchange, Newcastle-on-Tyne, in conjunction with the show of the Newcastle Chrysanthemum Society. The proceedings will be held under the auspices of the North of England Horticultural Society, the Four Northern Counties' Scientific Committee in Horticulture, the Hexham Committee of the Northern Fruit Congress and Show, and the Newcastle Chrysanthemum Society. Medals are offered by the North of England Horticultural Society, which will also grant certificates to new plants, flowers, and vegetables. Cups, medals, and money prizes will also be awarded (as distinct from the Newcastle Chrysanthemum Society's scheduled cups and prizes). The proposed syllabus is as follows:—Wednesday, November 15: Afternoon: "Fruit Culture in the North," by Messrs. J. S. CHISHOLM, Horticultural Instructor for Northumberland; and W. B. LITTLE, Lecturer at Armstrong College and Horticultural Instructor for Cumberland and Westmorland. Evening: "Horticultural Education." Thursday, November 16: Afternoon: Lectures on fruit bottling and pruning, with demonstrations; lecture on "Soils and Food Supplies." Evening: Lecture on "Diseases of Fruit Trees." All correspondence relating to the congress programme should be addressed to R. A. H. GRAY, Esq., M.A., M.Sc., Secretary Four Northern Counties' Scientific Committee in Horticulture, Armstrong College, Newcastle-on-Tyne. Exhibits of horticultural sundries,

and all matters relating to the scheduled exhibits of the Newcastle Chrysanthemum Society are under the supervision of Mr. W. MARRISON, Secretary, Newcastle Chrysanthemum Society, 7, Hutt Street, Gateshead, to whom all correspondence on such subjects must be addressed. A sum of £50 is needed to publish the verbatim official report of the Hexham Fruit Congress, 1910. Correspondence relating to this matter should be addressed to the Rev. J. BERNARD HALL, Rawdon, Leeds. It is hoped to continue the Northern Fruit Congress, in September, 1912, at Carlisle, and then return to Hexham, in 1913.

REMEDIES FOR APPLE SUCKER.—It is stated in a recent issue of the *Journal of the Board of Agriculture* that, in addition to the methods recommended in Leaflet 16 to be employed against Apple Sucker (*Psylla mali*), one of the Board's inspectors has found two remedies very useful during the last few years. These are respectively a nicotine wash of strength about 0.075 per cent., and a lime and salt wash containing 20 per cent. of lime and 2 per cent. of salt. The nicotine wash has proved superior to paraffin emulsion, and is absolutely innocuous to leaves and flowers. It should be used after the young begin to hatch out. A solution of this strength was found very successful at Woburn in 1908, 99 per cent. of the *Psylla* being killed in the case of 10 dwarf Apple trees sprayed on May 17, when the blossom buds were just open. The wash does not appear to be injurious to bees. The lime and salt wash should be applied in the middle of March or even later. Theobald recommends its application between the time of the opening of the buds and about two weeks beforehand. The action of the wash is described as forming a coating over the egg, and so preventing the breaking of the shell and the escape of the young insect. Trees that have not borne fruit for several years have yielded after the use of this wash.

STRAWBERRIES ON LIGHT SOILS.—A note with the above title, published in the *Journal* of the Royal Horticultural Society (May, 1911), records the results of planting over 40 varieties of Strawberries six or seven years ago. It was found that after three years many of the best varieties had failed. In spite of special care in cultivation—layering in pots in good soil and potting out the rooted plants in well-manured and prepared beds—only some half-dozen varieties continue at Wisley to fruit for two years and to make really good rows in the sandy soil there. Mulching in spring and digging in the mulch at once is found to be good practice. The varieties which have proved themselves best at Wisley are:—Aprikose, Climax, Cropper, Fill-basket, Royal Sovereign and Scarlet Queen. The two last-named serve for dessert fruit and force well, and for cooking and preserving purposes Climax, Cropper, and Fill-basket suffice.

PLANT INSPECTION IN FRANCE (see p. 47).—The Ministry of Agriculture of France has instituted a sub-department for the inspection of nursery and other horticultural stock and for the issuing of certificates that such stock is free from insect and fungus pests. The details of the scheme are published in *Le Jardin* (June 20, 1911). A feature of interest in connection with this new departure is that all growers who wish to take advantage of the service of inspection will pay a tax of 25 francs (£1) and that any surplus left after expenses have been met will be returned to the contributing nurserymen. A weak point in the scheme, though it is difficult to see how it is to be remedied, consists in the refusal of the State to incur any liability in the event of the certificates which it issues being refused recognition by the authorities of foreign States.

A GERMAN HORTICULTURAL COLLEGE.—The German Horticultural College of Kestritz, Thüringen, was founded in 1887, and is about to remove into new and enlarged quarters. Upwards of 2,000 gardeners have passed through this institution since its foundation, and its increasing usefulness seems indicated by the fact that the number of students in attendance (191) during the last half-year was greater than in any previous corresponding period.

INTERNATIONAL CONFERENCE OF GENETICS.

—The organising committee of the fourth International Conference of Genetics met at Paris on June 14, under the presidency of Dr. VIGIER. M^{rs}. PHILIPPE DE VILMORIN, the secretary of the committee, informed the members of the arrangements up to the time of the meeting. He stated that he had received the names of 130 supporters, including three honorary members. The sum received in subscriptions amounted to 2,300 francs. In addition to French biologists, who are members of the committee, many scientists have subscribed, including Messrs. BAUER, GIESENHAGEN, GOLDSCHMIDT, PEITZER and POEL (Germany); AGAR, BATESON, DARBISHIRE, GREGORY, HARTOG, LAXTON, LYNCH, NEITHESHER, PATON, PUNNETT, STAPLES, BROWNE, SUTTON, and Misses SAUNDERS, WHEDDALE and DURHAM (Great Britain); BRADLEY (Australia); FRUWIRTH, STRAKOSH and TCHERMAK (Austria); W. ET C. SAUNDERS (Canada); JOHANSEN (Denmark); BALLS (Egypt); DAVENPORT, HAYS, HOWARD, SWINGLE and TOWER (United States of America); HAGEDOORN, HOUWINK, LOTSY and NORDUIJN (Holland); LEAKE (India); STRAMELI (Italy); NILSSON-EHLE (Sweden); CHODAT (Switzerland); BORIS DE FEDTSCHEN-KO (Russia); and ARECHAVELETA (Uruguay). A large number of universities and scientific institutions will be officially represented. Numerous communications have been promised. Short references to these communications will be printed before the meeting of the conference, and they will be published in *extenso* in the *Proceedings*, a copy of which will be sent to each subscriber. The programme of the conference will depend on the number of the communications, but it seems probable that five sittings will be sufficient. The remaining time will be occupied by visits to the Museum of Natural History, to the Pasteur Institute at Garches, to Verrières, to the Laboratories of the Sorbonne, &c. There will probably be a reception by the French National Society of Horticulture on September 18 and one at the Hotel de Ville on September 23.

THE EXPORTATION OF AUSTRALIAN APPLES.—That the export trade in Apples from Australia (including Tasmania) increases year by year is shown by the following statistics:—

Cases exported in			
Port.	1909.	1910.	1911.
Melbourne ...	120,000	168,000	149,000
Hobart ...	172,000	228,000	295,000
Adelaide ...	49,000	56,000	31,000
Sydney ...	—	1,000	1,700
Fremantle ...	—	—	4,000
Totals	341,000	453,000	480,700

A single boat shipped recently no fewer than 112,000 cases, and it was estimated that in a single week as many as 246,000 cases were put on board at Hobart.

PUBLICATIONS RECEIVED.—*Ways and Means in Phytography*. (London: Burroughs, Wellcome & Co.) *Weather Wisdom in Agriculture*, by W. R. Dunlop. (London: Vinton & Co., Ltd.) Price 18s. net.

SCOTLAND.

THE ROYAL VISIT TO EDINBURGH.

In connection with the recent visit of the King and Queen to Edinburgh, Mr. J. W. M'Hattie, the superintendent of the Edinburgh Parks and Gardens, was called upon to provide a large number of plants for street decorations, and most of these were obtained from the houses in Inverleith Park. In regard to the Princes Street Gardens, every care was taken to have the flower beds in the very best condition possible. Great credit is due to Mr. M'Hattie and his staff for the manner in which the work was carried out.

THE KING AND THE SCOTTISH HORTICULTURAL ASSOCIATION.

A DUTIFUL address was drawn up by the Scottish Horticultural Association to be presented to his Majesty the King. The society expressed the hope that King George might receive a favourable impression of Scottish horticulture. The address was signed on behalf of the association by Mr. W. H. Massie, president, and Mr. A. D. Richardson, secretary.

MR. ROBERT SCOTT.

MR. ROBERT SCOTT, gardener at Harvieston, Gorebridge, N.B., is leaving to take up an important appointment in Massachusetts, U.S.A. Mr. Scott is a son of Mr. William Scott, gardener at Drumpark, Dumfries, for a long period, and a successful exhibitor at leading Scottish shows.

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.

PROPOSED REVIVAL OF THE ROYAL HORTICULTURAL SOCIETY'S "TRANSACTIONS."—At the last annual meeting of the Royal Horticultural Society in February I raised the question of the Publications. If I can judge from the manner in which my suggestion was received by the Fellows present, and from the letters I have since received from others who were not present, I have little doubt that an improvement both of the manner and the matter of publication is desired by the majority of those Fellows who wish to raise the general standard of knowledge in horticulture. I proposed a revival of the quarto *Transactions*, illustrated in colour when necessary, for the publication of papers of permanent value and interest, leaving the business matter, proceedings of Committees, and short notes and abstract to the *Journal*; and I suggested that if only such a small proportion as 10 or even 5 per cent. of the Fellows were willing to pay extra for such a publication (not to exceed £1 ls. per annum), it would not cost much, if anything, whilst it would vastly improve the status and influence of the Society. It seems to me that there is room for such an annual volume, which might serve to illustrate properly the very numerous and beautiful new plants which at present are more or less known from the horticultural Press, the *Botanical Magazine*, or trade catalogues, and would attract valuable contributions from members of the Society and others, who at present have no suitable means for recording and illustrating their work; lastly, that the first volume of these *Transactions* might come out most appropriately in the year of the International Exhibition, and would serve as a permanent record of many of the new plants and shrubs which will be shown on that occasion. I have just received (June 19) a circular dated May, and sent out with Part 3 of the *Journal*, also dated May, in which I am asked to subscribe one guinea a year "if and when the suggested publication by the society of *Scientific Transactions* is realised;" but, as there is nothing in this circular to explain the object of the publication or to inform Fellows of its probable value or style of

illustration, it seems to me that they cannot answer the question without further information and discussion. H. J. ELIAS, *Colchester*.

WASPS. There appears to be an unusual number of wasps in this district, and we have already destroyed 20 nests in these gardens this season. Many queens were killed in the spring, whilst a gardener friend killed 150 queens during a period extending from January to the end of May. This appears rather remarkable, as so few nests were detected last autumn; we found only six nests, but the previous season we destroyed 40. How can the presence of so many queen wasps this season be explained? P. B., *Sparkeswood Gardens, Rolvenden, Kent*.

A FINE CHERRY TREE.—Though by no means a Cherry district, there is a remarkably fine specimen of a Cherry tree a short distance from here growing in the ornamental grounds of C. Cope, Esq., Darnhills, Radlett. I saw this tree just as it was coming into flower, and it was truly a remarkable sight. The height is 76 feet, circumference of the branches 231 feet, and girth at 3 feet from the ground, 13 feet 2 inches: a wonderfully well-grown tree, symmetrical and healthy. I believe the variety to be "Corone" or Hertfordshire Black, and I was informed that no fewer than 40 bushels of fruit have been picked from the tree at one time. E. Beckett, *Elstree*.

AMERICAN GOOSEBERRY-MILDEW.—After a long interval, on the 13th inst. I came across a bad outbreak of American Gooseberry-mildew. This will necessitate a systematic examination of gardens and nurseries in the district. The pulling of green Gooseberries is over for the season, but we have a lot of "pipes," and mildew would settle on them if left. Stephen Castle, *Walpole St. Andrew's, Wisbech*.

BUDDLEIA VARIABILIS AS A STANDARD.—In the winter or early spring of 1909 I set two small plants of this handsome shrub in my garden. One of them died; whether from frost or from exposure when transplanted is uncertain. The other lost the ends of the shoots, but it grew vigorously in the spring, perhaps 7 or 8 feet high, and it flowered profusely. I pruned it hard in the autumn, and again in 1910 it flowered very freely, some of the inflorescences being quite 18 inches long. The plant then consisted of a main stem and two or three smaller ones springing from near its base. Last autumn I cut away the secondary stems, and the branches of the main stem to a height of about 4 feet, leaving the head of numerous branches untouched. Now the main stem is between 7 and 8 inches in girth at a foot from the ground, and the whole plant about 13 feet high, in the form of a small tree. Until about a fortnight or three weeks ago, I thought it was not going to flower this season, as all the shoots had the appearance of having finished their growth without any trace of inflorescence. The lower leaves were changing to yellow, and some falling off, so about 10 days ago I gave the plant a copious watering and now every branch bears a terminal panicle of half-developed flowers. From an early stage the shoots are strongly heliotropic, from east to west following the sun. W. Botting Hensley, *Strawberry Hill, July 15*.

TROPEOLUM SPECIOSUM.—In the gardens at Basing Park, Hampshire, this plant thrives most luxuriantly. It is planted on a north aspect against Rhododendrons and other evergreens, rambles over these shrubs and presents a picture when in flower throughout the summer months, equalled by few other creepers. It was planted by the present gardener, Mr. T. Down, 10 years ago. I have grown the species in these gardens the last few years with fair success. W. H. Y., *Rotherfield Park Gardens, Atton, Hants*.

—No one has yet mentioned two very important points in the successful cultivation of this plant. The shoots should all be pinched off as soon as they appear above ground except the one which is to be trained. This shoot should again be pinched off when 6 feet from the ground, and the resultant shoots when they are a little higher. In this way alone can that dense column of shoots, and later on of leaves, be obtained.

The plant itself is quite easy to grow if planted 1 foot deep, and with another good foot of light loam and leaf mould to rest into. The best situation is a wall having a south or west aspect, where the passing shade of trees can be had, and to judge by the behaviour of the plants here this season they do not mind drought. *Basil Leach, Wykeham Park, Burton-on-Trent.*

That *Tropaeolum speciosum* may be successfully grown in various conditions, would seem to be evident from the correspondence on the subject in these pages. The two most luxuriant growths that I have seen in this county confirm this opinion. Thus at Killerton, the seat of Sir C. T. D. Acland, Bart., which is situated on the north side of Exeter, about midway between that city and Tiverton, I saw, a few years

below it to a width of a mile. The nursery faces east but is on rising ground; in the lower part, however, amidst bog and moisture-loving plants, the *Tropaeolum* is allowed to grow as it pleases with the most satisfactory results. Both these conditions may be covered by Mr. A. C. Bartlett's statement, that the climate of Devonshire is not "hot in the general acceptance of the term," but that the excess of atmospheric moisture when the temperature rises above normal produces a close, muggy atmosphere, which induces the luxuriant vegetation for which both Devon and Cornwall are noted. *John R. Jackson, Clarendon, Lymington, E. Devon.*

Four years ago last spring I was tempted to try some plants of this species to train up young Larch trees, which are grown partly for shade and partly for supporting

SOCIETIES.

ROYAL HORTICULTURAL.

JULY 18.—The meeting held on this date was only very moderately attended, although the exhibition was a good one. The weather was hot, and many of the flowers, and especially Roses, had a withered appearance in the afternoon. Orchids were not so numerous as usual. The ORCHID COMMITTEE recommended a First-class Certificate to *Dendrobium Victoria Regina*.

The principal exhibits before the FLORAL COMMITTEE were Roses, Carnations, Caladiums, Pelargoniums, Gloxinias, Phloxes, Ferns and hardy flowers. This Committee recommended 11 Awards of Merit.

Some splendid Pineapples were shown by Lord

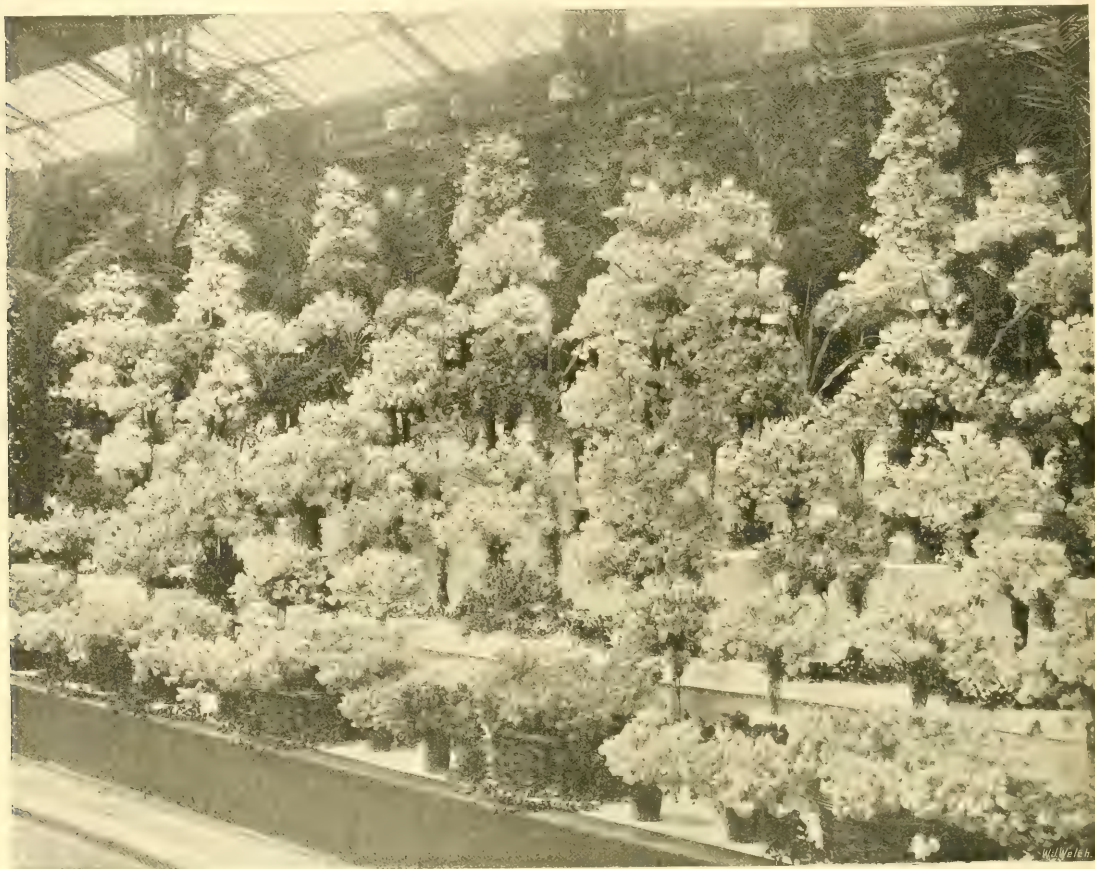


FIG. 25.—MESSRS. DOBBIE AND CO.'S EXHIBIT OF SWEET PEAS AT THE OLYMPIA SHOW.

(See p. 15)

since, a beautiful growth of the plant which had made itself a home trailing over bushes—if I remember rightly—of lavender, which were planted at regular intervals in a long narrow bed stretching in a westerly direction, but facing south, and thus exposed to full sunlight. The plant mingled with the bushes, and hung in festoons between them, producing a very brilliant effect. Under very different conditions, but equally luxuriant in its habit of growth, the plant flourishes in the Exminster nursery grounds of Messrs. R. Veitch & Son, which are situated on the south-east side of Exeter, about 10 miles distant from the city and almost contiguous to the marshes bordering the canal and the River Exe, which opens out a little

climbers, such as Roses, Clematises, Actinidias, &c. I dug a good hole and added a little fresh soil, then took up a good spadeful of roots from the base of another plant, and planted the roots about 18 inches deep. In due course the young growths appeared, and were trained to string the first year. The second year they reached 12 feet and were a fine show; this season they look like growing 25-30 feet, and are now a blaze of colour. *T. speciosum* likes plenty of water and partial shade, and is extremely beautiful when allowed to ramble over branches. I would suggest that if deep planting were generally practised we should not hear of so many failures. *W. A. Cook, Leonard's Vineyard, Exeter.*

LLANGATTOCK in the fruit and vegetable section, and another noteworthy exhibit of fruit was a collection of Gooseberries staged by Messrs. JAS. VEITCH & SONS. The FRUIT AND VEGETABLE COMMITTEE granted seven Awards of Merit to varieties of Peas after trial at Wisley, and a similar Award was made to a new Bramble-fruit named King's Acre Berry.

At the 3 o'clock meeting in the lecture room an address on Irises was delivered by Mr. W. Rickatson Dykes, M.A.

Floral Committee.

Present: Messrs. W. Marshall and H. B. May (Chairmen); and Messrs. C. T. Drury, E. A. Bowles, T. W. Turner, Jno. Green, W. J. Bean,

G. Reuthe, J. F. McLeod, J. T. Bennett-Poë, R. C. Reginald Nevill, Charles Dixon, Herbert J. Cutbush, Arthur Turner, H. J. Jones, Chas. E. Shea, Chas. E. Pearson, W. P. Thomson, E. H. Jenkins, W. J. James, George Paul, W. B. Cranfield, W. Cuthbertson, R. Hooper Pearson, Jas. Douglas, John Jennings, A. Kingsmill, and C. Blick.

The Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. Edwin Beckett), filled a large table with plants of scented-leaved Pelargoniums, the exhibit being remarkable not only for the comprehensive collection, but also for the fine quality of the plants. The species were very remarkable. *P. tetragynum* has growths like a *Rhipsalis*; *P. betulinum*, the Beech-leaved Pelargonium, is well named. Two good scarlet-flowered varieties were observed in Moore's Victor and Ardens Major. *P. tomentosum* possesses a scent resembling Peppermint. Others of special merit were Pretty Polly, Blandfordianum, Radula and Artemesiodes. (Silver-gilt Flora Medal.)

Mr. L. R. RUSSELL, Richmond, contributed a

showed their choice strain of Gloxinias in batches of colours, set off by a row of standard *Plumbago capensis* and clumps of finely-flowered *Exacum macranthum*, *Hibiscus subviolaceus*, *Solanum Wendlandii* and *Cannas*, the group making a pretty colour scheme. This firm also showed Carnations and Roses. (Silver-gilt Banksian Medal.)

Mr. W. DEAL, Kelvedon, Essex, exhibited new varieties of Sweet Peas of his raising. The more notable were Juliet (soft blush pink, with extra-large standard), Kathleen (deep glowing cerise), Scarlet Monarch (red), and Bouquet (a small but pretty flower, veined with red on a buff ground, the wings being rose-tinted).

Mr. A. F. DUTTON, Iwer, Buckinghamshire, showed 95 varieties of border Carnations. The most striking were the purple varieties, Iwer Purple being of the shade known as royal purple. Bendigo is also of this shade. Several new sorts were included in the collection, of which *Grahamie White* (white), *Lord Kitchener* (buff coloured fringed), and *Maud Allen* (yellow ground and petals)

and the bright-yellow *Cecilia* was also conspicuous. The variety *Mrs. Fortescue* is a bright shade of cerise; the mauve-coloured tree *Carnation Edna* is delightfully scented. (Silver Flora Medal.)

Messrs. PHILLIPS & TAYLOR, Bracknell, Berkshire, showed border Carnations, with vases of *Gypsophila* and *Coreopsis verticillata* for relief. The best of the Carnations were Miss Wilmott (rose-pink), Daffodil (yellow), Hildegard (white), and Ellen Gottwartz (buff).

The Misses LE LACHEUR & SHERRIS, Henfield, Sussex, showed a collection of Carnations.

Mr. W. A. WATTS, St. Asaph, North Wales, showed a new pink border *Carnation* named *W. A. Watts*.

Amongst several fine seedling Carnations shown by Mr. CHARLES BLICK, Hayes, Kent, was a magnificent yellow-ground fancy named *Leslie*. The flower was of splendid form, the petals having rosy-crimson flakings on a buff ground.

Messrs. FRANK CANT & Co., Colchester, showed bunches of garden Roses. A selection of their



FIG. 21. MESSRS. TAYLOR AND CO.'S EXHIBIT, AT THE COLUMBIA SHOW.

(See p. 15.)

The book also shows *Cactaceae*, the group presenting a fine display of leaf-colouring. The paler varieties, such as *Queen Alexandra* (pale green and silver, with faint rose in the centre), *Candidum* (white, with tracery of green), *Rose Laing* (silver and rose), and *Thomas Tomlinson* (a broad border of green, the centre splashed with rose), were remarkably pretty. Amongst the larger plants were handsome specimens of *John R. Box* and *Marquis of Camden*. (Silver Flora Medal.)

Messrs. H. B. MAW & SONS, The Nurseries, Edmonton, showed a batch of *Acalypha hispida* and varieties of *Ferns*. *Adiantum* were well represented, such handsome sorts as *A. cardiolobum*, *A. Farleyense gloriosum*, *A. Veitchii*, with rose-tinted fronds, and *A. velutinum* being represented by such good specimens. A curious *Fern* is *Pellaea ternstroemia*, the fronds having a dark bluish rachis, with pinnae at intervals suggesting a *Galium*. (Silver Flora Medal.)

Messrs. JAMES VEITCH & SONS, LTD., Chelsea,

were the more meritorious. *Roy Morris* (dark red), *Daffodil* (yellow), and *Hayes' Scarlet* were especially good amongst older sorts. (Silver-gilt Banksian Medal.)

Mr. JAMES DOUGLAS, Edenside Nursery, Great Bookham, Surrey, displayed choice border Carnations, the flowers being of splendid quality. The new yellow self *Mrs. Elliot Douglas* received an Award of Merit. *Mrs. Andrew Brotherstone* is a fancy *Carnation* of distinctive colouring; what appears to be a grey ground is heavily splashed with crimson; an added charm is its strong clove scent. Other good varieties were *Elizabeth Shifner* (maize-coloured self), *Mrs. Griffith Jones* (rosy-buff), and *Agnes Sorrel* (clove). (Silver Flora Medal.)

Messrs. W. CURBISH & SON, Highgate, showed Carnations of all types, including some excellent blooms of the *Souvenir de la Malmaison* Princess of Wales. *Sir Chas. Freemantle*, another of this section, was also well shown. *White Perfection* was good amongst the perpetual-blooming sorts,

choicer varieties are *W. R. Smith* (a pretty *Tea Rose*, cream, tipped with rosy pink), *Duchess of Wellington* (a deep yellow H.T.), *Hugh Dickson* (one of the best dark-coloured varieties and delightfully scented), *Lyon Rose* (good generally this season), *Lady Hillingdon*, and *A. R. Goodwin H.T.* (the petals flushed with coppery red). (Silver Banksian Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, had some of the freshest *Roses* in the show in a mixed group of flowers and plants. The varieties *Harry Kirk*, *Denn Hole*, *White Killarney*, *Duchess of Wellington*, *Lyon Rose*, and *Mollie Sharmar Crawford* were most excellent. Besides the *Roses* were some choice Carnations and well-bloomed *Celosias*. (Silver Banksian Medal.)

Messrs. PAUL & SON, Chesham, exhibited a group of *Roses* on the floor. At the back were *Ramblers*, including *Lady Gay* and *Hiawatha*, with masses of bloom. Those of the larger-flowered type included fine flowers of *Frau Karl*

Druschki, Maman Cochet, Constance Soufert, Rene W. Urban (cream, with a rose-coloured centre), Gustave Regis (a climbing H.T. variety), Nova Zembla (one of the best Rugosa varieties), and George W. Waud. (Bronze Flora Medal.)

Messrs. W. PAUL & SON, Waltham Cross, showed a few boxes of Roses, the flowers being large exhibition blooms of Nerissa H.T., Alice Cory Wright, Frances Charteris Seton, and Bianca.

Mr. PHILIP LE CORNU, Jersey, showed a new Hybrid Tea Rose named Duchess of Normandy, described by the raiser as a salmony-golden Dean Hule.

Roses were also shown by Messrs. BEN R. CANT & CO., Colchester, the blooms being arranged in large bunches. (Silver Flora Medal.)

Messrs. GUNN & SONS, Olton, Birmingham, arranged a large group of Phloxes on the floor.

ham. The flowers were grouped very effectively in a corner, and included General van Hentz (salmon-scarlet, with a white "eye"), Selina (mauve, crimson in the centre), G. A. Strohlein (of an intense shade of salmon), Metéore (pink), Antonin Mercie (mauve, shaded white), and Dr. Charcot (Periwinkle-blue). (Silver Banksian Medal.)

Mr. F. LILLEY, Guernsey, showed Gladioli, principally varieties of the nanus or early-flowering section. The exhibit was arranged in a delightful manner, and was one of the prettiest groups in the Hall. We were especially pleased with the following varieties:—Sarnian Gem (salmon-pink, the lower segments blotched with red and carmine), Ardens (orange-red, with similar blotches as in Sarnian Gem), General Scott, Pink Perfection, and Crimson Queen. (Silver Banksian Medal.)

A large Fernery, with a water garden in the centre, planted with showy border flowers, was arranged by Mr. AMOS PERRY, Enfield. (Silver Flora Medal.)

Mr. R. Upton, Guildford Hardy Plant Nursery, showed hardy flowers. Novelties included Françoia sonchifolia, Nierembergia rivularis (with white, Campanula-like flowers), Delphinium Zalil (with sulphur-yellow blossoms), and Lavendula spicata alba (white Lavender).

Messrs. DOBBIE & Co., Edinburgh, showed their fine, large-flowered African Marigolds Lemon Queen and Prince of Orange, of the colours indicated by the names. They had also a vase of their new salmon-coloured Sweet Pea named Melba, a bold, massive flower, of a rather lighter shade than the well-known Earl Spencer.

Messrs. WHITELEGG & PAGE, Chislehurst, Kent,



FIG. 27.—FLOWERING SHOOT OF FLAGIANTHUS LYALLII.

(Received R.H.S. Award of Merit on Tuesday last.)

The finer sorts were Miss Willmott (lavender), King Edward VII. (reddish-scarlet), Elizabeth Campbell (old rose, white in the centre), Violet, Baron van Dedem (orange-scarlet), and Le Madhi (violet-blue). (Silver Banksian Medal.)

Messrs. W. WELLS & Co., Merstham, Surrey, exhibited varieties of Phlox decussata, including several fine sorts of Continental origin. A few of the choicer varieties are Elizabeth Campbell (old rose, passing to white in the centre), Iris (a fine purple variety), Flora Hornung (pink and white, with a purple "eye"), Metéore (pink), General van Heutz (salmon scarlet), and Frau Antonin Buchner (white). (Silver Flora Medal.)

Another exhibit of Phloxes was made by Messrs. H. J. JONES, LTD., Hither Green, Lewis-

Messrs. KELWAY & SON, Langport, Somersetshire, exhibited large numbers of Gladioli, Gaillardias, and Delphiniums. The last two were arranged together, the Gaillardias being splendid flowers. The blue Delphiniums had faded considerably in the intense sunshine, the best being Macaulay, Excelsior, May Morison, Brilliance, and Knight of the Grand Cross. A selection of the Gladioli includes Queen Maud, Mrs. Coddington and Countess of Leicester.

Mr. MAURICE PRICHARD, Christchurch, Hampshire, showed hardy flowers of splendid quality, making a bold mass of blooms. Coriaria japonica, Asclepias tuberosa, Crinum Powellii, and a selection of border Phloxes comprised some of the choicer kinds. (Silver Banksian Medal.)

showed a mixed group of Scabiosa caucasica perfecta and Geum coccineum Mrs. J. Bradshaw, two excellent varieties of their respective kinds.

THE KING'S ACRE NURSERIES, Hereford, exhibited a batch of Eremurus Olge, including an albino form, which received an Award of Merit.

Exhibits of hardy flowers were also shown by Mr. G. REUTHE, Keston, Kent (Bronze Flora Medal); Messrs. W. WARE, LTD., Feltham; Messrs. G. & A. CLARK, LTD., Dover; Mr. A. J. HARWOOD, St. Peter's Nursery, Colchester.

A bunch of the blue-flowered Salvia Sclarea was shown by Mrs. MARTINEAU, Hurst Court, Wyford.

AWARDS OF MERIT

Evermanns Olye alba.—This variety has pure white flowers, but in other respects is very similar to E. Olge. Collected at an altitude of 7,000 feet in North Persia, the plant was presented as new under the name of E. Setonii alba, but in the glaucous character of its leaves the manner of growth, and time of flowering, it was unanimously thought to be a variety of E. Olge. (KING'S ACRE NURSERY, Hereford.)

Carnation James Quinn.—A fancy Carnation with a buff ground suffused with crimson-red.

C. King George.—A perfectly white flower of spotless purity and high excellence. This is one of the varieties named by her Majesty the Queen at the time of the Coronation.

C. Dora Black.—This is a remarkable flower in every way and probably unique in shade. It has been described as "terra-cotta," but, in addition to this, there is an unmistakable suffusion of pale orange. The novelties described above were shown by the raiser, Mr. CHARLES BLICK, Hayes Nurseries, Kent.

Canna Frau E. Kracht.—A striking and beautiful novelty of the highest merit and of that salmon-rose shade seen in the border Carnation Lady Hermione. The variety possesses a free branching habit, and the flowers are very large. (Messrs. JAMES VEITCH & SONS, LTD., Chelsea.)

Carnation Herbet Newman.—A white ground border variety, with the petals striped with scarlet. The flowers are of large size and good form. Judged by its 2½ feet-long stems, the plant would appear to be one of exceptional vigour. (Mr. A. F. DUTTON, Iwer, Bucks.)

C. Mrs. Elliott Douglas.—A border variety of rich golden yellow; the flower is handsome and well proportioned. (Mr. JAS. DOUGLAS.)

C. Mrs. Andrew Brotherton.—This variety may be best described as a crimson "fancy," the ground colour being copiously freckled with white. The flower is of large size, and the petals possess unusual substance. (Mr. JAMES DOUGLAS, Great Bookham.)

Rose Nerissa, H.T.—A Hybrid Tea Rose of a deep shade of cream, with a suffusion of pink. (Messrs. WM. PAUL & SON, Waltham Cross.)

Fokienia Hodginsii (see *Gard. Chron.*, Feb. 4, vol. xlix., p. 66, figs. 32, 33, 34, 35).—Miss WENBURN, Barnet, exhibited plants of this new genus of Conifera, varying from 6 inches to about 12 inches high. These particular plants were received a few weeks ago from China.

Plagianthus Lyallii (see fig. 27).—A beautiful New Zealand flowering shrub belonging to the Malvaceae. It has proved to be quite hardy in many diverse parts of Britain. The pure-white flowers have clusters of golden anthers, and the blooms are produced from the axils of the growths made in the previous year. See also *Gard. Chron.*, May 25, 1907, p. 335. (C. J. LUCAS, Esq., Horsham.)

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, de B. Crawshaw, Gurney Wilson, W. Bolton, J. Wilson Potter, R. G. Thwaites, A. A. McBean, W. H. Hatcher, W. Cobb, J. Charlesworth, J. E. Shill, F. J. Hanbury, C. J. Lucas, W. H. White, and Sir Jeremiah Colman, Bart.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed a magnificent plant of the violet-coloured *Dendrobium Victoria Regina*, which secured a First-class Certificate and Cultural Commendation—the only Awards of the day. Sir TREVOR LAWRENCE also showed sprays of the new Javan *Dendrobium Annae*, with large, bluish-white flowers, having an orange disc to the lip, allied to *D. mutabile*, which was also shown.

DE B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a finely-blotched form of *Odontoglossum waltoniense*; a fine purplotted form of *Odontoglossum rosefieldensis*; and *Odontodia Nemesii* (O. Hallii x C. Noeliana).

F. J. HANBURY, Esq., Brockhurst, East Grinstead, sent *Cattleya Miss Harris* "Brockhurst variety," finely veined and tinged with deep rose.

Messrs. CHARLESWORTH & CO., Hayward Heath, staged a select group containing a very bright yellow form of the handsome *Anguloa*

Cliftonii, with three very large flowers; the new white-petalled *Cattleya Alcimedea* (Gaskelliana alba x *labiata* Gilmouree), *Laelio-Cattleya Sibyl* (C. Mendelii x L.-C. Dominiana), a beautiful hybrid, with flowers much resembling those of the favourite *Cattleya Octave Doin*; *Sophr.-Laelio-Cattleya Pandora* (S.-L. heatonensis x C. Dowiana Rosita), with bronzy-yellow sepals and petals; the rare *Cymbidium Huttonii*, two very bright blue forms of *Vanda cœrulea*; *Stanhopea oculata*, *Cirrhaea viridissima*, *Satyrrium coriifolium*, and a very pretty white *Satyrrium*, with crimson lines, *Vanda Agnes Joaquim*, and some good *Odontoglossums*, including the fine white *O. ardensissimum xanthotes*.

Messrs. SANDER & SONS, St. Albans, showed a very interesting group of *Cattleyas*, *Laelio-Cattleyas*, *Odontoglossums*, &c., specially good being *Stanhopea inodora*, with seven flowers on a spike, *Catasetum maculatum*, *Cycnoches peruvianum*, *Dendrobium Regium*, *Cattleya Rex*, with six flowers, the clear blue-lipped *Zygopetalum Sanderæ*, *Bollea coleste*, *Ancistrochilus Thompsonianus*, *Bulbophyllum barbigerum*, and many other interesting species, including a very remarkable new *Gongora*, not yet determined. Hybrid Orchids included *Brasso-Cattleya Mrs. J. Leeman*, B.-C. *Thornonii*, and other *Brasso-Cattleyas*. (Silver Banksian Medal.)

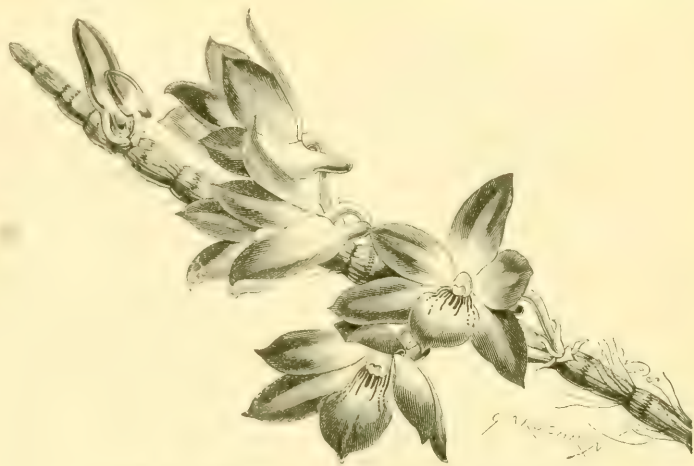


FIG. 28.—DENDROBIUM VICTORIA REGINA; FLOWERS BLUE.

(Awarded First-class Certificate on Tuesday last.)

Messrs. STUART LOW & CO., Bush Hill Park, staged an interesting group, at the back of which were several species of *Oncidium*. The centre was of red *Renanthera imschottiana* and *Epidendrum vitellinum*, arranged with scarlet *Disa grandiflora*. Among others noted were the showy *Stanhopea tigrina*, *Physisiphon Loddigesii*, with many sprays of orange-coloured flowers, *Odontoglossum Sanderianum*, with several spikes, several fine *Cattleya Warszewiczii*, *Masdevallia Veitchii grandiflora*, M. calura, and M. Peristeria, *Miltonia Warszewiczii*, *Epidendrum patens*, and E. *Brassavola*. (Silver Banksian Medal.)

Messrs. J. & A. A. McBEAN, Cooksbridge, staged an effective group, in which were several very fine forms of *Odontoglossum crispum*, including the clear white *O. c. xanthotes* Peeter's variety. Several plants of *Cattleya Warszewiczii*, including a very fine form of the variety *imperialis*, a very beautiful milk-white *Miltonia Hyeana*, with violet lines in the front of the yellow base of the lip, *Cochlidia St. Fuscien*, and C. *Charlesworthii*, with several bright scarlet forms of their parent *Cochlidia Noezliana*, were also included.

Baron BRUNO SCHROEDER, The Dell, Englefield Green (Orchid grower, Mr. J. E. Shill), showed the handsome *Laelio-Cattleya elegans Broomeana*, one of the finest forms of the favourite natural hybrid. The flowers were large, rose-purple, with broad, purplish-crimson front to the lip.

The plant flowered originally in the collection of the late Joseph Broome, and was described in the *Gardeners' Chronicle*, September 11, 1897, p. 174.

AWARDS.

FIRST-CLASS CERTIFICATE

Dendrobium Victoria Regina, from Sir TREVOR LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White).—This is the blue *Dendrobium* of Manila described in the *Gardeners' Chronicle*, June 19, 1897, p. 399, and figured August 21, 1897, when it had received an Award of Merit at the Royal Horticultural Society. The plant now shown was much superior, and hence the higher Award.

CULTURAL COMMENDATION.

To Mr. W. H. White, Orchid grower to Sir TREVOR LAWRENCE, Bart., K.C.V.O., for a grand specimen of *Dendrobium Victoria Regina*, with over 30 spikes of violet-blue flowers, with white centres. The plant was grown in the *Odontoglossum* house.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (Chairman); and Messrs. J. Cheal, C. G. A. Nix, W. Bates, F. Perkins, A. Dean, E. Beckett, T. Coomber, G. Reynolds, G. Wythes, J. Harrison, O. Thomas,

J. Davis, W. Poupart, J. Jaques, and H. Markham.

Messrs. GEORGE BUNYARD & CO., LTD., Maidstone, showed Cherries *Cleveland Bigarreau* and *Monstrueuse de Mezel*, the former being a new variety. It was decided that members of the Committee should inspect the tree of *Cleveland Bigarreau* and furnish a report at the next meeting.

Fruits of the "Lowberry," from plants in the open, were shown by Messrs. STUART LOW & CO., Bush Hill Park, Enfield. The Phenomenal variety was declared by the Committee to be the same as the Loganberry. A black Raspberry, shown as Cumberland Black Cap, was also exhibited by Messrs. STUART LOW & CO.

LORD LANGATOCK, The Hendre, Monmouth (gr. Mr. T. Coomber), exhibited 23 handsome fruits of Queen Pines. (Silver-gilt Knightian Medal.)

THE SWANLEY HORTICULTURAL COLLEGE displayed 24 round, well-netted Melons under the name of College Seedling. The plants had been grown in small boxes, but they produced a large crop. (Silver Knightian Medal.)

Messrs. JAMES VEITCH & SONS showed from their Langley Nurseries a collection of 50 baskets of Gooseberries backed by numerous trellis-cordons and heavily-fruited bushes in pots. The finest plants were of the varieties *Lancashire Lad*, *Whinham's Industry*, and *Keen's Seedling*, all

red sorts, and of yellow kinds Golden Queen, Peru, Langley Beauty, and Gunner. Of the gathered fruits, Clayton, Alderman, Lord Audley, Highlander, and Forester (red), and Gipsy Queen, Early Sulphur, Gunner, Langley Beauty, Keepsake, Criterion and Whitesmith (yellow) are a selection. (Silver-gilt Knightian Medal.)

AWARDS OF MERIT.

King's Acre Peas.—Fruits were exhibited at a previous meeting, and a sub-committee of the Committee having inspected the plants and reported favorably, an Award of Merit was promptly mended. (KING'S ACRE NURSERIES, Hereford.)

The following varieties of Peas received Awards of Merit, after trial at Wisley, where they were inspected by a sub-committee on the 17th inst.: The Caithness and America (these two from Mr. HOLMES); Eureka, King Edward and Matchless Marrowfat (these three from Messrs. SUTTON & SONS, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

NATIONAL SWEET PEA.

INSPECTION OF THE TRIALS.

JULY 13.—There was considerable discussion last winter among the members of the National Sweet Pea Society as to the composition of their Floral Committee, whose duty it is to visit the trials at the *Windsor Experimental Station*, Sutton Green, Guildford. Ultimately it was decided that the committee should consist of nine members elected by ballot by the general committee. The nine chosen were Mr. Robert Bolton, Mr. S. B. Dicks, Mr. George Herbert, Commandant Humphrey, R.N., Mr. Andrew Ireland, Mr. Thomas Jones, Mr. A. Malcolm, Mr. Herbert Smith, and Mr. Thomas Stevenson. Mr. Malcolm was elected chairman, and two visits were paid to the trials, a week intervening between them.

On Thursday, the 13th inst., the Society made its annual inspection. About 100 members travelled from London, and soon after arrival were engrossed in the trials. These have been carried out by Mr. Harry Foster, son of the late Mr. Charles Foster. A new and better method of planting has been adopted this year by which the colours are classified, and follow one another in long lines. Considering the recent dry weather the plants were in very good condition, 4 to 6 feet tall with abundance of medium-sized flowers.

The first object of the trials is to discover novelties; the second, but almost equally important, being to report which stocks are pure. The latter object can be attained, even though the flowers are small, but before giving awards to novelties they ought to be seen at their best. We believe the Floral Committee on the occasion of its two visits saw the flowers in better condition than they presented to the members of the general outing. Very many of the 268 stocks on trial are impure. This is, of course, explained by so many of them being novelties, which the owners send in the hope that they will come true and gain one of the much coveted certificates or awards. At the head of each section is grown the variety considered by the committee last year as the best in the section. These, we were pleased to see, were mostly quite true, showing that seedsmen are taking more pains with their general stocks. For the first time the Floral Committee has acknowledged by an Award stocks giving one rogue in a row.

It will give readers interested in Sweet Peas an idea of what is going along if I give a few notes of distinct varieties made on the spot. The numbers are those of the trial in the official list:—

Nos. 3 and 4.—Lavender-coloured flowers from R. Bolton, evidently Afterglow or selections of same. Distinct and much waved.

No. 12.—Lavender colour from Dobbie & Co., the variety they have been showing under the name of Mrs. Heslington. True.

No. 27.—A shade of lilac from R. Bolton; a very fine flower.

No. 28.—Heliotrope-pink, from W. Deal; true, like Winsome.

No. 33.—F. Seymour Davis, white-flushed palest violet. A distinct and fine flower. Award of Merit. From F. Seymour Davis.

No. 43.—Mauve, from Dobbie & Co. Granted an Award of Merit and named "Mauve Queen."

No. 72.—Doris Usher Improved, from Sutton & Sons; an excellent stock of this fine Pea.

No. 73.—Cream Rose, from R. Holmes. A remarkably fine, pale rose-coloured flower.

No. 76.—Lady Betty, from C. W. Breadmore. In the way of Charles Foster; a fine stock.

No. 92.—Isabel, from Mr. Aitkens. A new colour, but not very vigorous.

No. 98.—Orange Pink, from Dobbie & Co. A fine strain of H. Lewis with cream-coloured base.

No. 109.—Earl Spencer, from Dobbie & Co.; a very excellent stock.

No. 111.—Salmon, from R. Holmes, was awarded the distinction of a First-class Certificate and named "Barbara." It is fixed and true to type, and a first-rate flower.

No. 116.—Orange, from A. Malcolm. This is a large, rather pale Earl Spencer, and may be Melba as shown by Dobbie & Co.

No. 119.—Orange-scarlet, from Dobbie & Co. Awarded First-class Certificate, and reserved for Silver Medal next year if it keeps true. Almost identical with Thomas Stevenson, hence it was named Dobbie's Thomas Stevenson. It must have been the finest Pea when the Floral Committee paid its visits.

No. 130.—A. A. Fabius, from Mr. Agate. Fine colour, similar to Edith Taylor, though not quite fixed, well worth growing.

No. 137.—Vermilion brilliant, from Alex. Dickson & Sons. A very bright scarlet; true.

No. 133.—Red Sar, from A. Malcolm. Received the Award of Merit as the best scarlet on the occasion of the Committee's visit.

No. 140.—Scarlet, from R. Holmes; a very good flower.

Nos. 141 and 142.—Scarlet March, from William Deal; good stocks of this well-known scarlet.

No. 148.—Paradise Red Coral, from Miss Hemus. A magenta Marjory Willis. Some very large and fine flowers in this section.

No. 150.—Crimson, from R. Bolton. This is the deepest crimson yet seen.

No. 161.—Improved John Ingman, from Dobbie & Co.; a first-class flower.

No. 174.—Purple Prince Spencer, from Sutton & Sons; true and good stock.

No. 178.—Red Chief, from R. Bolton. Does not seem the same as last year's stock. Only a good crimson this year; last year it was a mahogany colour.

No. 182.—Ivy Herbert, from C. W. Breadmore, is a darker Merrie Christie; true.

No. 195.—Blue Jacket, from Stark & Son; though entered as a Lord Nelson Spencer is an excellent Navy Blue Spencer.

No. 211.—Marbled, from Dobbie & Co., received an Award of Merit and named "May Campbell"; is cream marbled with carmine.

No. 212.—"Mrs. B. Gilbert," from Gilbert & Son (not Dobbie & Co., as stated on p. 38), received an Award of Merit. It is a white ground marbled with purplish-mauve.

No. 214.—Loyalty, from Stark & Son, is a dark marbled Blue Spencer. Several stocks were grown, but this was the best.

No. 227.—Cream and Rose, from E. W. King & Co., is a grand grower, but not yet fixed.

No. 234.—Paradise Peach Blossom, from Miss Hemus, is a large flower of pale but warm lavender.

No. 250.—A bicolor, from Dobbie & Co., seemed distinct and a strong grower.

No. 251.—Colleen, from W. Deal, was most showy and quite true.

A large number of Helen Pierce variations, some of them of the Spencer type, were on trial. Mr. Deal seems to specialise in these, but they must be increased in size before they can hope to receive the attention of exhibitors.

The party was entertained to lunch and tea by Lady Northcliffe, who is this year President of the Society. Her ladyship received the members at the entrance to the luncheon tent and presided at the lunch. In a graceful speech she welcomed the Society to Sutton Green, and expressed the pleasure that under her presidency the membership was increasing. The other speakers were Mr. Alfred Watkins, Mr. W. Atlee Burpee, and Mr. W. Cuthbertson, who paid a tribute to the late Mr. Charles Foster.

EALING HORTICULTURAL.

JULY 5.—Through the kindness of Leopold de Rothschild, Esq., the 47th annual exhibition of the Ealing Horticultural Society was held at Gunnersbury Park. The privilege of inspecting these beautiful grounds on such a fine day induced a large number of visitors to attend the show. Immediately inside the chief tent Mr. REYNOLDS arranged a fine group of stove and greenhouse plants from the Gunnersbury Park glasshouses. This group contained some large, highly-coloured Acalyphas and Crotons, and several well-flowered Ixias. At the other end of the tent, Mr. HUDSON staged from the Gunnersbury House gardens a group of large standard Plums, loaded with luscious-looking fruits; beneath the fruit trees there were bowls of large blue Nymphaeas. Other non-competitive contributions included a collection of variegated Maples, standard Fuchsias, Dracenas, and Aralias from Messrs. W. FROMOW & SONS, Chiswick; a well-coloured group of Mr. RUSSELL's standard Ivies, from Richmond; a huge display of splendid Sweet Peas, by Messrs. TIGWELL, Greenford, Middlesex; and a high-class stand of cut blooms of such Roses as the Lyon Rose, Her Majesty, and Mrs. Roosevelt from Mr. GEO. CANNON, Ealing Nurseries.

The 1st prize for a group of plants filling a semi-circular space of 12 feet by 6 feet, was won by H. W. PEAL, Esq., Ealing (gr. Mr. C. Edwards), with a tasteful arrangement; 2nd, A. W. PERKINS, Esq., Greenford.

The 1st prize for smaller groups was awarded to Mrs. UNDERHILL.

H. W. PEAL, Esq., staged some immense Streptocarpus, bearing a quantity of huge flowers of good colour.

The open classes for Roses brought some very fine blooms, such well-known Rose exhibitors as Mr. E. HICKS, Wallingford; Messrs. W. & J. BROWN, Stamford; and Messrs. G. & W. BURCH, Peterborough, staged exceedingly good collections in the principal class, and won in the order named. This seems to be a Lyon year, and that beautiful Rose was in perfection in each stand, while Ben Cant, Mildred Grant, and Earl of Warwick were other outstanding varieties in the best exhibits.

FORMBY HORTICULTURAL.

JULY 12.—The annual show of the above society was held in the grounds of Briar's Hey, the residence of Mrs. F. A. Rockliffe, on this date. The number of entries and quality of the exhibits were fully up to the average for these shows, but the hot weather soon caused the cut blooms to wither, Sweet Peas being the least affected.

The best exhibit of 12 Roses of distinct varieties was shown by Mrs. ROCKLIFF, Caroline Testout, Killarney, and Mrs. W. J. Grant being prominent varieties.

The premier collection of 12 Roses in six varieties was shown by Mr. JOS. BOOTH, whilst Mr. THOS CARLISLE led for six varieties, distinct.

Mr. H. HODGKINSON excelled in the class for six light-coloured Roses, and in the similar class for dark varieties Mr. E. HACKING was the winner of the 1st prize.

Other winners of 1st prizes in the Rose classes were Mr. F. W. PASSMORE, Mr. A. E. GUNSON, Mrs. ROCKLIFF, Mrs. STOREY, Mr. B. KENNEDY, Mr. A. W. ARDAN, Mr. THOS PUGH, Mr. LOO THOMSON, Mr. W. BECKETT, and Mr. JONES.

The 1st prize for six blooms of double-flowered Begonias was won by Mr. F. A. COOK, and Mrs. GYNN excelled for single-flowered varieties. Mr. W. MCCONNAN had the best single Pelargoniums, Mr. W. DODD the finest Pansies, and Mr. JONES the choicest Violas.

Mr. J. GILBOURNE won the 1st prize offered for biennials and annuals, and he also showed the finest hardy perennials.

Sweet Peas proved a strong feature of the show, and the plant classes were well contested.

In the fruit classes many exhibitors were disqualified for not conforming to the conditions of the schedule. Mr. T. NORRIS won in the principal class for vegetables. Amongst non-competitive exhibits, Messrs. A. DICKSON & SONS, Newtownards, contributed a capital stand of hardy flowers and Roses. Mr. H. MIDDLEHURST showed Sweet Peas, and Messrs. WOODWARD & CUTHBERT hardy herbaceous flowers.

GLOUCESTERSHIRE ROSE AND SWEET PEA.

JULY 4.—The 23rd annual exhibition of the Gloucestershire Rose and Sweet Pea Society was held in the Spa Cricket Field, Gloucester, on this date in fine weather. The exhibits numbered more than 400, and, as Mr. Conway Jones remarked at the opening ceremony, considering the extraordinary season, the Roses were of excellent quality and in greater number than was expected.

Messrs. ALEX. DICKSON & SON, Newtownards, provided quite a Rose exhibition of their own, and in the five classes in which they showed, they secured four 1st prizes. Their collection of 72 varieties was an exceedingly fine exhibit, among the most notable blooms being George Dickson, Mollie Sharman Crawford, Mabel Drew, Lady Helen Vincent, George C. Waud, Mrs. Cornwallis West, and Brilliant.

In the class for 12 blooms of a light Rose, Messrs. DICKSON won the 1st prize with the variety Mrs. Theodore Roosevelt.

The best exhibit of 12 blooms of a dark coloured Rose was shown by Mr. JOHN MATTOCK, Oxford, namely J. B. Clark, whilst Mr. HARRY DREW, Longworth, secured the premier

Sweet Peas were a conspicuous feature of the exhibition, the prizes attracting many well-known competitors. The entries numbered close upon 300, a big advance on previous years.

The six vases shown by Mr. JARRETT THORPE, for which the Winfield Challenge Cup was awarded, were filled with splendid flowers. Among the newer varieties Mrs. R. Hallam, Edna Unwin, Marjorie Linzee, Minam Beaver, and Bertie Usher, appeared to be general favourites among exhibitors, while of the older sorts Elsie Herbert, Helen Lewis, Mrs. Charles Foster, Tennant Spencer, Etta Dyke, Clara Curtis, Evelyn Hemus, and Paradise Ivory compared very favourably with the newer varieties.

Mr. A. STIRLING, Goring-on-Thames, and Sir RANDOLPH BAKER, Ranston, Blandford, won most of the 14 premier honours in the open classes, Mr. STIRLING winning the Cup for 24 distinct varieties. Col. TIMMIS, of Matson House, Gloucester, was awarded the National Sweet Pea Society's medal for 12 distinct varieties in the class restricted to Gloucestershire amateurs.

Mr. W. J. UNWIN, Histon, Cambridge, was awarded a gold medal for a magnificent display of Sweet Peas. Messrs. J. C. WHEELER & SON, Ltd., Gloucester, were awarded a gold medal for

ELSTREE AND BOREHAM WOOD HORTICULTURAL.

JULY 12.—The third annual summer show of this society, held on the above date, was a considerable improvement upon the two previous exhibitions. The society is fortunate in being granted the use of Aldenham Park for these shows, and the gardens and pleasure grounds are open to the inspection of visitors. This year the show was held in two large marquees, one being reserved for the honorary exhibits and the other for exhibits of cottagers and amateurs.

A class for table decorations, open to ladies, brought several competitors, and made a good display, the 1st prize being won by Miss HART, for an artistic arrangement of Carnations.

The classes for Begonias, Gloxinias, table plants, Ferns, &c., were well filled, as were those in the amateurs' and cottagers' sections.

A silver Rose bowl was offered in competition for a display of Roses, but Messrs. B. HARKNESS & Co., of Hitchin, were the only exhibitors. They staged a remarkably fine exhibit in a pleasing and attractive style. Other Roses were also well shown by trade exhibitors, including Messrs. W. CUTBUSH & SON, Highgate; Messrs. GEO. PAUL & SON, The Old Nurseries, Cherhunt; and



FIG. 29.—A WATER-GARDEN EXHIBIT BY THE HON. VICARY GIBBS AT THE ELSTREE SHOW.

award in the class for 15 varieties in single trusses.

In the open amateur classes Mr. CONWAY JONES, Hucclecote, Gloucester, continued his successes, his prizes including the Silver Challenge Bowl, valued at 30 guineas, offered for 36 varieties. In this collection the judges found the best bloom in the division—Dean Hole—which was awarded a National Rose Society's silver medal. A novelty in the exhibit was a new seedling raised by Mr. CONWAY JONES, and named after Mr. T. A. Washbourn, a former hon. secretary of the society and in earlier years a most successful exhibitor. The new variety is a beautiful crimson Hybrid Perpetual. In the city of Gloucester amateur division Mr. A. V. WRIGHT carried off the Corporation Plate for a display of Roses, and also the Sheriff's Plate for six varieties, and a National Rose Society's silver medal with a fine bloom of White Maman Cochet. Mr. JARRETT THORPE, of Hucclecote, Gloucester, and Mr. DONWELL, Hereford, were also awarded National Rose Society's silver medals for best blooms, with J. B. Clark and Mildred Grant respectively.

a general floral display; Messrs. YOUNG & Co., Cheltenham, received a gold medal for Carnations, and Messrs. WINFIELD, Gloucester, received a medal for a collection of Sweet Peas.

DUTCH BULB GROWERS', HAARLEM.

The following awards were made at the recent meetings of the Floral Committee:—

AWARDS OF MERIT.

Iris hispanica "Amethyst."—A variety with soft blue and violet-coloured flowers, the lip being light blue and spotted with orange and yellow.

Iris anglica "Alexandre Dumas."—A large, azure-blue flower spotted with dark indigo; the lip has a large white spot, and stripings of yellow.

Iris Kämpferi "Wasaka."—A flower of extraordinary size and coloured dark purple.

Anemone anglica "L'Eclair."—The flowers of this novelty are coloured salmon rose, the petals being broad and round.

Messrs. EASON BROS., Barnet. Other trade exhibitors included Messrs. NEWMAN & SON, of Watford, who showed 150 vases of Sweet Peas; Messrs. GLEESON & Co., who staged hardy perennials; Messrs. SANDER & Co., St. Albans, who staged their new Marguerite Mrs. F. Sander, and also a most attractive display of Orchids.

The President, the Hon. VICARY GIBBS (gr. Mr. E. Beckett, V.M.H.), showed two honorary exhibits. One consisted of a superb collection of vegetables, staged in Mr. Beckett's well-known style, and including excellent dishes of Peas, Potatoes, Marrows, Artichokes, Beet, Cauliflowers, &c. The other consisted of a water-garden exhibit (see fig. 29). At the back, were large clumps of Typhas, Bamboos, and other large-growing Reeds, interspersed with clumps of Delphinium, Epilobium, Lythrum, and other tall flower-spikes. Around the sides and front were arranged Antirrhinums, Iris Kämpferi, Saxifragas, and Liliums, whilst choice Nymphaeas were planted in the water.

H. T. TATHAM, Esq., Kendall Hall (gr. Mr. Wm. Gaiger), showed a meritorious collection of Sweet Peas of the newer varieties.

E. GREENWOOD, Esq., Frith Knowl (gr. Mr. C. Capell), staged a group of miscellaneous flowering and foliage greenhouse plants.

Mr. THOS. HINE also had an honorary exhibit of Sweet Peas, the flowers being much admired.

The hon. treasurer, the Rev. A. R. T. Yates, the hon. secretary, Mr. W. J. Pritchard, and committee are to be congratulated on the general success of the show.

The society's autumn show, principally of fruits and vegetables, is fixed for September 16.

PURLEY ROSE AND HORTICULTURAL.

JULY 15.—The annual summer show of this society was held in the charming grounds belonging to the President, Mr. William Webb, on this date. In the nurserymen's classes great interest was centred in the competition for the Purley Challenge Cup. This award is presented by Mr. J. Ivali for 36 Roses, distinct. Messrs. B. R. CANT & SONS, Colchester, won the trophy, the 2nd prize being awarded to Messrs. R. HARNES & CO., Hitchin.

The National Rose Society's Silver Medal (presented by A. E. Protheroe, Esq.) for the best Rose in the amateurs' section, was won by A. TATE, Esq., Leatherhead, for a grand bloom of Bessie Brown. The same exhibitor was also the winner for the year of the Ladies' Challenge Trophy (presented by the ladies of Purley).

J. IVALI, Esq., Purley (gr. Mr. Russ), won the 1st prize for a group of flowering and foliage plants arranged for effect. 2nd, A. BATES, Esq., High Burrow, who won the 1st prize for six plants suitable for table decoration.

Many trade exhibitors were present, and their exhibits increased the general attractiveness of the show. Messrs. FLETCHER BROS., Chertsey, exhibited Roses and hardy flowers; Messrs. WELLS & CO., Merstham, showed Carnations, Phloxes, and other border flowers; Messrs. GEO. JACKMAN & CO., Woking staged hardy flowers, and Messrs. CARTER PAGE & CO. put up an exhibit of Dahlias and Sweet Peas.

A Silver-gilt Medal was awarded to Mr. BRAZIER, Caterham, for an exhibit of Begonias, Phloxes, Roses, and some specially good Carnations. Mr. H. LAKEMAN, Thornton Heath, exhibited Carnations attractively. Mr. T. BUTCHER, The Nurseries, South Norwood, arranged a group of greenhouse plants. The GULDFORD HARDY PLANT CO. and Messrs. GEO. BUNYARD & CO., LTD., Maidstone exhibited some cut hardy flowers. Some excellent Sweet Peas were exhibited by Mr. JAS. BOX, Lindfield, who also staged good varieties of hardy Phloxes. Against a suitable background of Fern-fronds Mr. A. L. GWILLIM, Sidcup, displayed a selection of double, single and crested Begonia blooms.

NORTH HANTS. SWEET PEA.

JULY 15.—The fifth annual show of this society was held, at the invitation of Mr. and Mrs. Alfred Palmer, at Wokefield Park, Mortimer, on the above date. Twenty-four classes were provided, and there were over 250 entries. The premier prize for 15 bunches of distinct varieties was won by Mr. A. L. COOK, and the N.S.P.S. medal given by Mr. F. Mason Good, went to Mrs. TWIST for an exceedingly good bunch of Evelyn Hemus. Altogether, the display was well worthy of the society, which, although it is only a small private society, has done much for the cult of the Sweet Pea in this district, and reflects great credit on the founder, the Rev. F. Page Roberts, who still acts as hon. secretary and general organiser.

NATIONAL GLADIOLUS.

JULY 18.—The first exhibition of this newly-established floral society was held in conjunction with the fortnightly meeting of the Royal Horticultural Society in Vincent Square, Westminster, on Tuesday last. The schedule comprised nine classes, seven of these being restricted to nurserymen. The competition was very limited. Three exhibitors entered in the various nurserymen's classes, whilst the open classes were practically neglected. In all but two classes medals constituted the prizes.

The first class was for 12 varieties early-flowering Gladioli, six spikes of each variety to be

shown in 12 vases. Mr. FRANK LILLEY, Guernsey, was the only exhibitor. He showed varieties of *G. nanus*, and was awarded the silver medal offered as the 1st prize.

In a class for the same number of varieties of early or late-flowering varieties, Messrs. KELWAY & SON, Langport, Somerset, won the 1st prize, their finest varieties being Theodora (orange-red), Lady Muriel Digby (cream-lemon and crimson), and Conway Seymour (reddish scarlet); 2nd, Mr. K. VELTHUYS, Hillegon, Holland.

There were three entries in the class for a group of Gladioli, any varieties, arranged with any foliage, in a space not exceeding 5 square feet. The 1st prize was awarded to Messrs. KELWAY & SON, the 2nd to Mr. LILLEY, and the 3rd to Mr. VELTHUYS.

Messrs. KELWAY won the 1st, 2nd and 3rd prizes in the class for three spikes of a new Gladioli with the varieties Cecilia Kelway, Bala, and James William Kelway respectively.

Mr. LILLEY was the only exhibitor of six blooms of any Gladiolus shown in a vase, whilst the secretary, Mrs. ATKINSON, The Flagstaff, Locksheath, Southampton, had the best basket of Gladioli with the variety America.

AWARDS OF MERIT.

Gladiolus James William Kelway.—Of the *gandavensis* type, the flowers being a rich velvety-red. A glorious flower in both size and colouring.

C. Cecilia Kelway.—Also a large-flowered variety, the petals being rose, shading to a paler centre, the lower segments lemon, blotched with red. Both shown by Messrs. KELWAY & SON.

ENQUIRIES AND REPLIES.

WHICH IS THE BEST BOILER?—In reply to the query on this subject by J. C. (see vol. xlix., p. 360), I find the Chatsworth boiler the best and most economical boiler for heating in small places, if set on four bricks with flues all around. I have just replaced one that has been in use for 17 years. The length of this boiler is 42 inches by 18 inches by 18 inches, and it has to heat about 1,150 feet of 4-inch piping. The cost for fuel averages £13 to £14 per annum. We use small coke from cinder ovens. Our houses here are stove, greenhouse, early and lateinery, Croton house, intermediate Orchard house, cool Orchard house, and Tomato house, besides one span-roofed frame and pits. All these are heated from the one boiler. The fire will burn almost anything that is put on it. F. G. Skelton, Mount Pleasant Gardens, Bishop Auckland.

ANSWERS TO CORRESPONDENTS.

APPLE SHOOT DISEASED: D. K. The trouble is due to canker. Spray the trees next season with the Bordeaux mixture at half strength when the leaves are expanding, and again when the fruit is set.

BEGONIAS FAILING: F. B. The damage is caused by eelworm at the roots, for which there is no cure.

CARNATION SEEDLING: Seashore. Your Carnation is a seedling form of a fringed, and probably double variety of *Dianthus Caryophyllus*. The varieties of the best florists' type always produce about 10 per cent. to 15 per cent. of single flowered varieties, but the margins of the petals are not fringed. The slender stems rather suggest *Dianthus plumarius*, but this cannot be determined without seeing the growth of the plant. The flowers are as large as those of the single-flowered Carnations, and possess a Carnation scent.

DIANTHUS BARBATUS and CAMPANULA MEDIUM: Perpleyed. The Sweet William has been killed by eelworm. The soil should be treated with quicklime, or, better still, with gaslime, and allowed to lie for a few months before use. There is no trace of disease in the Canterbury Bells.

GRAPES UNSATISFACTORY: W. A. G., R. J. F., and J. D. No disease is present. The unsatisfactory appearance of the berries is due to the cultural treatment.

MELON DISEASE: X. Y. Z. The plant is affected with Melon-leaf blotch. Spray the foliage on alternate days with liver of sulphur, one ounce in two gallons of water.

NAMES OF PLANTS: P. M. W. The fruiting specimen is *Hypericum Androsæmum*; the other is *H. elatum*.—W. Honess. *Daphne Mezereum*.—A Regular Reader. 1, *Thuya plicata*; 2, *Magnolia* (probably *M. obovata*); 3, *Olearia Haastii*; 4, *Abies*; the specimen is too poor for identification; 5, *Acuba japonica salicifolia*.—Fakam. 1, Rose, send to some grower; 2, *Helichrysum orientale*; 3, *Clematis recta*; 4, *Geranium sanguineum*; 5, *Lythrum salicaria*.—A. P. S. 1, *Campanula carpatia*; 2, *C. linifolia*; 3, *C. rhomboidalis*; 4, *C. pusilla*; 5, *C. alliarifolia*.

—F. B. *Boldenaea*. *Galium verum*; Lady's Bedstraw.—W. T. & Co. *Epimedium pinnatum*.—W. Fulford. 1, *Veronica speciosa* alba; 2, *Iris* sp. (too withered for identification); 3, *Achillea alpina*.—A. B. C. 1, *Rheum palmatum*; 2, *Epilobium angustifolium*; 3, *Campanula latifolia* alba; 4, *Stachys sylvatica*; 5, *Symphitum tuberosum*; 6, *Spiraea tomentosa*; 7, *S. Douglasii* var.; 8, *Campanula rapunculoides*; 9, *Spiraea japonica*; 10, *Epilobium hirsutum*; 11, *Deutzia crenata* fl. pl.—W. R. P. 1, *Lactuca Plumieri*; 2, *Potentilla recta macrantha*; 3, *Cytisus canariensis*.—J. D. 1, *Lotus corniculatus*; 2, *Prunella vulgaris*; 3, *Potentilla Tormentilla*.—R. V. & Son. *Coronilla varia*.—J. D. *Poa nemoralis*, *L. O. R.* 1, *Oncidium unicum*; 2, *O. sphacelatum*; 3, *Odontoglossum Sanderianum*; 4, *Brassia verucosa*; 5, *Oncidium flexuosum*; 6, *Angraecum arcuatum*.—H. T. 1, *Pteris tremula*; 2, *Adiantum tenerum*; 3, *A. formosum*; 4, *Cheilanthes elegans*.—W. E. B. *Magnolia glauca* var. major figured in the *Botanical Magazine*, t. 2164.—E. S. 1, *Cœlogyne cristata*; 2, *Odontoglossum pulchellum*; 3, *Dendrobium nobile*; 4, *Cypripedium villosum*; 5, *Oncidium species*; 6, *Cymbidium Lowianum*; 7, *Cypripedium barbatum*. The names of the names of the pieces of Orchids sent so far as we can judge without seeing flowers. All the specimens show indications of having suffered for want of sufficient water. Use rain-water if possible.

NECTARINES: Dacus. The fruit has been injured by mildew. Spray the tree next season with liver of sulphur at a strength of one ounce in three gallons of water, commencing when the leaves are unfolding. —H. M. E. The leaves are injured by mildew. Spray the trees with liver of sulphur, one ounce in three gallons of water, and repeat the spraying next season when the leaves are unfolding.

SOIL FOR EXAMINATION: M. C. The sample appears to be of good quality, and contains a considerable amount of fibre, but it is rather light in texture. Try the effect of a mulching of cow manure.

"STREAK" IN SWEET PEAS. *Ajazz* and *Kent*. Another season, sprinkle the soil with sulphate of potash when the plants are 3 to 4 inches high.

SWEET PEA SPORT: *Sweet Pea*. The variety shows no improvement on the cream-pink sorts already in commerce. There are many good varieties in this section.

TO DESTROY WIREWORMS. *Ajazz*. The most certain method of destroying wireworms is by injecting carbon bisulphide into the soil. Pour a quarter of an ounce into a small hole about 6 inches deep. This is sufficient for each square yard. Carbon bisulphide is highly inflammable, and care is required when using it.

TOMATOS: *Pillingers*. The leaves are affected with Tomato leaf-rust. If the fruit is present, spray the plants with liver of sulphur: one ounce in a gallon of water.

VIOLAS DISEASED: R. J. The plants are affected with Violet-rust (*Puccinia violæ*). There is no cure at this stage. Do not propagate from diseased plants. Add lime to the soil.

Communications Received. —F. S. T. N. S. L. & Co. La Rose, F. G. Stonbridge, P. W. S. C. E. P. H. A. V. E. B. Dahlia, W. O. M. C. A. B. H. W. Chloris, H. W. H. W. P. Leatherhead. —D. R. W. E. M. W. A. C. T. S. H. W. J. C. S. A. C. T. D. W. B. H. L. H. C. S. S. A. S. W. J. V. F. W. H. W. Harrogate, A. R. R. W. & Co. Selsby. —J. R. L. G. Brussels, R. S. Woking, W. B. S., London, W. G. W. Baunstone, H. G. A. H. J. E., London, C. E. E. B. B. J. K. K. & Sons, W. P. R. L. H. H.

THE Gardeners' Chronicle

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THROUGH LITTLE NAMAQUALAND WITH THE VASCULUM AND THE CAMERA.*

IT is not easy, perhaps it is impossible, to reveal by means of pen and paper the secret of the fascination with which Namaqualand grips those who have lived or travelled there. The difficulties are the greater when one is addressing those who are favoured to abide among the green fields, the trim woods, and the choice gardens of England. In Namaqualand the sun is rarely obscured by cloud, and in the summer the joys of its rising are tempered by the thought of what must be endured before it sets. But, however intense the heat of midday, the exhilarating effect of the crisp dry air never fails. The glories of the night are not to be attempted by an ordinary pen. A rich and hardy vegetation, comprising some of the most remarkable of plant-forms, fails to clothe the nakedness of the land. The most striking feature of Namaqualand scenery is found in the bare granite domes and slopes of its mountains (see fig. 30). In the sandy plains bordering the sea or the flat, stony desert across which the country is entered from the south, it seems to be the aim of each plant to establish itself as far from its neighbours as possible. Animal life, nevertheless, abounds. Many species of antelope, the wild ostrich, the jackal, hares, and, in sandy ground, mice innumerable, are constantly seen or heard. The little Namaqua partridge is found in large coveys at every water hole. Large birds of prey are common, and, except at high elevations, snakes are abundant, though, fortunately, they are of a retiring nature. The leopard is the greatest that remains of the beasts of prey; he rarely appears, though he may be heard in the early morning,

* Being some notes on the Percy Sladen Memorial Expedition to the Orange River, 1910-11. The expedition was assisted by a grant from the Royal Society.

and after nightfall he will sometimes cause a panic among the transport animals. Man has made his mark upon many parts of the country, but the economic value of his mines and his wheatfields hardly compensate for the destruction for which, directly or indirectly, he is responsible. But for those who have a taste for the silent solitude of great, unoccupied spaces in which the harder moods of nature have free course, Namaqualand still offers some attractions.

Namaqualand, as the name is usually understood, has its southern limit somewhat to the north of the mouth of Oliphant's River, and extends northwards to the Swakop River, the old political boundary between the Namaqua tribes in the south and the Damaras or Hereros beyond. It is washed by the Atlantic on the west, and its eastern frontier lies along the edge of that part of the South Central African plateau which is known as the Kalahari on the north and Bushmanland on the south. The Orange River in its lower course traverses it from east to west, and forms the line of separation between Great Namaqualand, part of the German Protectorate on the north, and Little Namaqualand on

In a comparatively short journey we pass from the sub-tropical succulent vegetation of the dry, sandy coast-belt or of the stony desert which bounds the coast to the south into the recesses of the mountains in which Heaths, Gladioli, Oxalis, Wahlenbergias, terrestrial Orchids, and brightly-flowered Composites relieve the dull monotony of Leucospermum, Cliffortias, Restiaces, Phyllicas, and other forms characteristic of the Table Mountain and the ranges which lie between it and the Karoo. In the south the rainfall is almost limited to the winter season; as we advance northwards the proportion of summer rain gradually increases. Throughout the region the principal flowering season occurs in the spring months—August to October. But as the proportion of summer rain increases, a secondary season of flowering, from December to February, becomes more and more marked. The spring flora, especially in the Khamiesberg and between this range and the Orange River, is, without doubt, but incompletely known, though it has yielded large collections of plants to Diège, Bolus and others. Few botanists have worked in the country in the



FIG. 30. NAMAQUALAND.

A northern part of the Khamiesberg showing a granite dome bare of planar panic vegetation except along the rocky crevices. In the foreground are fine tufts of *Acacia lustrata* and *Euphorbia mauritanica*. *Aloe dichotoma* occurs near the summit.

the south. It is to Little Namaqualand that the following remarks will mainly apply.

Little Namaqualand is generally regarded as a desert, and it must be confessed that, economically, the greater part of it deserves its reputation. But away from the maritime plains, the climatic conditions are by no means those of a desert. The land rises abruptly in a series of broken granite hills and mountain ranges, culminating in the Khamiesberg, the highest peaks of which attain to nearly 6,000 feet. From the summits of these the views in all directions are difficult to describe. To the west, beyond the lower hilltops, a golden haze overhangs the sandy coast belt, and in the farther distance, some 50 miles away, the sea sends back a glittering reflection of the setting sun. In the opposite direction the mountains fall some 3,000 feet to the plains of Bushmanland, which stretch almost without a break to the horizon. To the north and south, as far as one can see, the land is thickly beset with steep mountains, whose granite peaks and ridges give little promise of the wealth of vegetation that is actually found upon them.

summer season, and it is, therefore, not surprising that the collections made by the Percy Sladen expedition in December, January and February last appear to contain a considerable proportion of forms hitherto unknown.

In the summer months surface water is scarce, and travelling with a number of animals is not without its anxieties. In the recent journey a stretch of 48 miles separated one water from the next, and distances of 20 or 30 miles frequently occur between these halting places. Given such conditions and the necessity of transporting a load varying from 1,500 to 3,000 lbs. in weight for a distance not far short of 1,000 miles in a country possessing little grass, the traveller is almost compelled to use donkeys as transport animals. A team of 12 of these useful creatures performed the journey with ease. Ordinarily they will travel 15 miles a day, but under stress of circumstances they can do 50 miles in 24 hours. The illustration in fig. 31 shows, in the background, a mountain-mass, about 30 miles to the north of the Khamiesberg, rising to 4,300 feet. A little below the summit is an extensive plateau,

which bears a rich flora. The bare granite surfaces act as water-catchment areas, and where their lower edges meet the soil the greatest density of the vegetation is found. Sometimes two of these rock slopes form the

A mountain mass of this magnitude is an important water reservoir. Fed by the winter rains from the north-west, its springs remain active throughout the dry season; on three sides of it the land is rarely free from the effects of drought.



FIG. 31.—NAMAQUALAND.

The "transport" of the Percy Selous Memorial Expedition.

steep sides of a narrow ravine; when this is the case, the trough contains great bushes of *Erica Plukenetii* and *Muraltia rigida*, whose yellow pungent branches, frequently interlaced with those of a prickly *Cliffortia*, make travelling slow and painful; with them are found *Passerinas*, *Lachnæas*, one or more shrubby *Rubiacæ*, a strongly-scented *Desfontainia*, bushes of a *Dodonæa*, and two or three tall *Umbelliferae* with a *Psoralea* and a *Thesium* closely resembling them in habit. These are, perhaps, the most notable elements of the bush, which rises from a groundwork of *Restiaceæ*, *Selaginæ*, *Hydrocotyle*, and a few Grasses. But for the absence of *Proteacæ* and the presence in the rock crevices of many *Crassulas* and *Mesembryanthemums*, it would not be difficult to imagine oneself on the middle slopes of the mountains of the Cape, 200 miles to the south.

Fig. 32 shows the main ridge of the Khamiesberg, as seen from the south-west. One of the higher summits of the range (Sneeuwkop, 5,200 feet) appears in the background. In the middle distance is an old reed-roofed cottage (the middle one of the three buildings), which Drège is said to have visited in 1830. It is the old farmhouse known as Koets, situated about 10 miles east and a little north of Elleboogfontein, where Drège collected in August of that year. In fig. 33 the Sneeuwkop is seen from the west at a distance of about four miles from its base. From this point of view its twin peaks are fairly distinct. A number of fine examples of *Aloe dichotoma* occur on the rough northern slopes of the hill in the foreground, an aspect which is particularly favoured by this remarkable tree in the southern part of its range.

The flora of Sneeuwkop is of exceptional interest. Its upper slopes appear to receive as much, or perhaps more, rain than the higher peaks of the range; this is probably due to its more westerly situation. It is quite possible that a number of the species which occur—or did occur—on Sneeuwkop are not to be found at similar or higher elevations further inland. In December, 1909, some scores of acres on its middle and upper western slopes were devastated by fire, and a year later the vegetation was mostly a melancholy array of blackened stumps.

For this reason alone it is very much to be regretted that a great part of its surface has been allowed to pass into private ownership. Its sides are too steep to be of any value for agriculture, and its owners use it merely as an occasional run for sheep and goats. If it had been strictly protected, its capacity for water-



FIG. 32.—NAMAQUALAND.

North-western end of the Khamiesberg range with Sneeuwkop, 5,200 ft. as seen from Koets. Bushes of *Galenia fruticosa* in the foreground.

storage would be greater than it is, and, incidentally, it would have provided a refuge for the wild fauna and flora in a region where these are unusually interesting, and the flora, at least, greatly in need of protection. H. H. W. P.

(To be continued.)

HYBRID FREESIAS.

IN the issues for April 1 and 15 last, I note that attention is drawn to new *Freesias*—one named *Conquest*, raised by Mr. C. Van Tubergen, Haarlem, from inter-crossing *Tubergenii* *Freesias*, and others, raised by Dr. Ragionieri, from crosses of *F. refracta* alba and *F. Leichtlinii*. In 1908 I raised a beautiful variety from a cross between *F. refracta* alba × *F. Armstrongii*, and it received a First-class Certificate from the Horticultural Association of New South Wales. I named it *Freesia Maidenii*, after Mr. Maiden, the Government botanist. Mr. Maiden had a coloured drawing made, the flower being a pleasing shade of lilac-pink. The flowers are the same size as those of *F. refracta* alba, and are sweetly scented. The cross has slightly altered the season of flowering, which is some three weeks in advance of *F. Armstrongii*, and a little later than *F. refracta* alba. I have seedlings from the original plants, and will inform you later of the results. George W. Kitchener, Newmarket, and R. J. Groves, Wahroonga, Murrumbidgee, New South Wales.

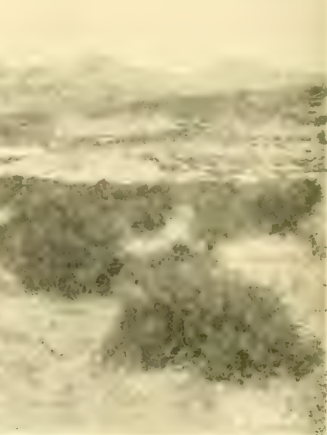
THE ROSARY.

POSE BILLARD ET BARRÉ.

ALTHOUGH this variety has been in cultivation for over 20 years, it is still less popular than it ought to be. There is no better golden-yellow garden Rose, for it blooms profusely, and has a good habit of growth.

Buds of *B. Billard et Barré* are on trusses, which are excellently suited for table decoration, and in the bud form it makes a fine coat flower. It can be well grown in bush forms, namely, as a large bush, standard, or half standard; as a standard or half standard it makes a fine, strong head.

This variety must not be pruned severely, for this causes very strong growth and but few flowers; all the pruning that is needed is to cut



out dead and worn-out wood, prune fairly hard the weak and twiggy growths, and the strong shoots only as far as they appear unripened. Billard et Barré grows and flowers best when grown on the seedling briar stock. Chester Parker.

REPORT ON THE CONDITION OF THE OUT-DOOR FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS.]

THE WORDS "AVERAGE," "OVER," OR "UNDER," AS THE CASE MAY BE, INDICATE THE AMOUNT OF THE CROP;
AND "GOOD," "VERY GOOD," OR "BAD," DENOTE THE QUALITY.

Full comments will be given in the following numbers. See also Leading Article on page 70.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND										
0. Scotland, N.										
CAITHNESS ..	Over; very good	Over; very good	.....	Average; good	.....	.....	Average; very good	Over; very good	.....	W. F. Mackenzie, The Gardens, Thurso Castle, Thurso.
ELGIN	Average; good	Average; good	Average; good	Over; very good	Under; good	Average; good	Average; good	Average; very good	.....	John Macpherson, Mayne Gardens, Elgin.
MORAYSHIRE	Over; very good	Under; good	Average; good	Average; good	Under	Average; good	Average; good	Average; good	.....	Wm. Ogg, The Gardens, Duffus House, Elgin.
ORKNIS	Average; good	Under	Over; good	Under	Under; good	Average; very good	Average; good	Average; very good	.....	Alex. Dow, Burnaway Castle Gardens, Forres, N.B.
ORKNLYS	Over; good	.....	.....	Over; very good	Average; very good	.....	Over; very good	Average; good	.....	Chas. Webster, Gordon Castle, Forchabers.
ROSS SHIRE	Over; good	Under; bad	Under; bad	Average; good	.....	.....	Over; good	Average; good	Average	William Liddell, The Gardens, Ballinur Castle.
SUTHERLAND-SHIRE	Over; good	Under	Under	Average	.....	.....	Over; good	Average	.....	William L. Minty, The Gardens, Ardross Castle, Atness.
	Average; good	.....	Average	Over; very good	.....	.....	Over; very good	Over; very good	.....	D. Melville, Dunrobin Castle Gardens, Sutherland.
										John McIvor, The Gardens, Skibo Castle, Dornoch.
1. Scotland, E.										
ABERDEENSHIRE ..	Over; good	Average; good	Average; good	Over; good	.....	.....	Over; very good	Under; good	.....	James Grant, Rothiemoran Gardens.
	Over; very good	Average; good	Over; very good	Average	.....	.....	Over; very good	Over; very good	.....	Simon Campbell, Fyvie Castle Gardens.
	Over	Average	Over	Over	.....	.....	Over	Average	.....	Wm. Henderson, The Gardens, Meldrum House.
BANFFSHIRE	Over; very good	Average; good	Average; good	Under; good	Over; very good	.....	Over; very good	Over; very good	.....	John MacKinnon, The Gardens, Haddo House.
	Over; good	Under	Average; good	Under	.....	.....	Average; good	Average; good	.....	G. George Edwards, Ballindalmond Castle Gardens.
	Over	Under	Average	Average	Over	Average	Over	Over; good	.....	Alex. Morton, The Gardens, Cullen House, Cullen.
BERWICKSHIRE ..	Over; very good	Under; bad	Average; good	Average; good	.....	Under; good	Over; very good	Over; very good	.....	Peter Smith, Duns Castle Gardens, Duns.
	Over	Under	Average	Average; very good	.....	.....	Over; very good	Over; very good	.....	Robert Stuart, Thirlestane Castle Gardens, Lauder.
	Average; good	Under; good	Under; bad	Under; good	Average; good	Under; good	Over; very good	Average; good	.....	Thomas Nelson, Milne Graden Gardens, Coldstream.
CLACKMANNAN-SHIRE	Over; very good	Under; good	Under; good	Under; bad	.....	Average	Average; good	Under	.....	R. Henderson, Ayton Castle Gardens.
	Average	Average	Under	Average	Under	Under	Average	Under	.....	Alexander Kirk, consulting gardener, Alloa.
	Over; good	Under	Under	Average	.....	.....	Average; good	Average; good	.....	James Small, The Gardens, Norwood, Alloa.
HAIFINGTON-SHIRE (EAST LOTHIAN)	Average; good	Average; good	Average; good	Average; good	Average; good	Average; good	Average; good	Average; good	.....	R. P. Brotherton, Tynningham Gardens, Prestonkirk.
	Average; good	Under; good	Average; good	Under	.....	.....	Over; good	Under; good	.....	Thomas Macphail, Archerfield Gardens, Dirliton.
FIFESHIRE	Average	Under	Under	Average	.....	Under	Average	Over; good	.....	Chas. Simpson, Wemyss Castle Gardens, East Wemyss.
	Over	Under	Under	Average; very good	Under	Under	Average; good	Average; very good	.....	D. McLean, Raith Gardens, Kirkcaldy.
	Over	Under	Under	Average	.....	Under	Average	Average	.....	William Henderson, Balbirnie Gardens, Markinch.
FORFARSHIRE	Average	Under	Over	Average; good	.....	.....	Average; good	Average; good	.....	William Alison, Scavay Gardens, Monifeth.
	Average; good	Under	Average; good	Under	.....	.....	Average; good	Under; good	.....	Andrew McAndie, Ruthven House, Muirgie.
	Over	Under	Under	Over; very good	.....	.....	Over; good	Over; very good	.....	Robert Dells, The Gardens, Kinnaid Castle.
KINCARDINESHIRE	Over; good	Under	Under	Average; good	Under	.....	Over; good	Average; good	.....	John M. Brown, The Gardens, Blackhall Castle, Banchoy.
	Over	Under	Average	Over; good	.....	.....	Over	Over; good	.....	William Knight, The Gardens, Fasque, Laurencekirk.
	Average	Under	Average	Average	.....	.....	Average	Average	.....	John Scott, Banchoy Lodge, Banchoy.
KINROSS-SHIRE	Under	.....	Average	Average	.....	.....	Over; good	Average	.....	R. Fraser, Kinross House Gardens, Kinross.
LINLITHGOWSHIRE	Average	Under	Under	Average	.....	.....	Average	Over; good	.....	Frank Henderson, Wallhouse Gardens, Bathgate.
MIDLOTHIAN	Average	Under	Average	Average	Under	Average	Average	Average	.....	Wm. G. Pirie, Dalhousie Castle Gardens, Bonnyrigg.
	Over; very good	Under; good	Average; good	Over; very good	Average; very good	Average; very good	Over; good	Under; good	.....	Benjamin Ness, The Gardens, Oxley Castle, Dalkeith.
	Under	Under	Under	Average; good	.....	Under	Over; very good	Over; very good	.....	D. Kidd, The Gardens, Carberry Tower, Musselburgh.
	Over; good	Under; good	Under; good	Over; good	Average; good	Under; good	Over; good	Average; good	.....	James Whytock, Dalkeith Gardens, Dalkeith.
PEEBLESSHIRE	Over	Average	Over	Average	.....	.....	Over	Under	Over	Wm. McDonald, Cardona, Innerleithen.
	Under	Under	Average	Average	.....	.....	Over	Average	.....	George Haig, Garvald Gardens, Dolphinton.
PERTHSHIRE	Average; very good	Under; bad	Average; good	Under; good	Average; good	Under; bad	Average; good	Under; good	.....	J. Farquharson, The Gardens, Kinfauns Castle, Perth.
	Over; good	.....	Average; good	Average; good	.....	Average; good	Average; good	Under; good	.....	Thomas Lunat, Keir Gardens, Dunblane.
	Over	Over	Over	Average	.....	.....	Over	Over; good	.....	John Robb, Milnab Terrace, Crieff.
	Over	Average	Average	.....	Average	Over	Average; very good	Over; very good	.....	James Besant, Castle Huntly Gardens, Longforgan, near Dundee.
6. Scotland, W.										
ARGYLLSHIRE	Over; good	Under; bad	Under; good	Under; good	Average; good	Under; bad	Under; bad	Under; bad	.....	D. S. McIlvrie, P. Malloch Gardens, Lochgilphead.
	Over; good	Under	Under	Average	.....	.....	Average; good	Over; good	Average	Henry Scott, Torloisk, Aros, Isle of Mull.
	Under	Under	Under	.....	.....	.....	Average, (except Gooseberries)	Over	.....	Alexander Macdonald, Castle Lachlan.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	ALMONDS.	SMALL FRUITS.	STRAWBERRIES.	NUCES.	NAME AND ADDRESS.
6. Scotland, W.										
AYRSHIRE	Under	Under	Under	Under	Under	Under	Average; good	Average; good	Under	William Priest, Eglinton Gardens, Kilmarnock.
	Average; good	Under	Under	Under	Under	Under	Over; good	Over; good	Under	J. H. M. Macdonald, Kilmarnock, M.A.
BUTESHIRE	Under; bad	Under; bad	Average; very good	Average; good	Average; very good	Under; very good	Average; very good	Average; good	Under; bad	D. Buchanan, Bute, Glasgow.
	Under; good	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Over; good	Under; good	Under	D. Halliday, Ascog Gardens, Bute.
	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Average	Under; very bad	Under	M. Heron, Mount Stuart Gardens, Rothesay.
DUMFRIE AND GALLOWAY	Over; very good	Over; very good	Under	Under	Average	Under	Over; very good	Over; very good	Under	D. Stewart, The Gardens, Knockberry Castle, Galloway.
	Over; good	Under; bad	Average; good	Average; good	Average; good	Under	Over; very good	Average; good	Over; good	Arthur Harwood, Arddarroch Gardens, Gariochhead.
DUMFRIESHIRE	Average; good	Under	Under	Under	Under	Average; good	Average; good	Over; very good	Under	John Urquhart, Hoddom Castle Gardens, Ecclefechan.
	Average	Under	Average	Under	Under	Under	Average	Over	Under	James McDonald, Dryfeholm, Lockerbie.
	Over; very good	Under	Average; good	Under	Under	Under	Over; very good	Average; good	Under	David Macdonald, Drummond Castle, Thornhill.
KIRKCUDBRIGHTSHIRE	Average; good	Under; good	Under; bad	Average; very good	Under	Under	Average; good	Under; good	Average; good	James Deuchars, The Gardens, Kilmure Castle, New Galloway.
	Under	Under	Under	Average	Average	Under	Average; good	Over; very good	Average	J. C. Dildawn, Dildawn Gardens, Castle Douglas.
LANARKSHIRE	Under	Under; bad	Under	Under; bad	Under	Under	Average; good	Under; good	Under	John Shields, Carstairs Gardens, Carstairs Junction.
RENFREWSHIRE	Average; good	Under	Under; bad	Under; bad	Under	Under	Average; good	Over; very good	Under	Peter Brown, Aigowan Gardens, Inverkip.
WIGTOWNSHIRE	Over; good	Under; bad	Under; good	Under; bad	Under	Under	Over; very good	Over; very good	Under	John Bryden, Dunragit Gardens, Dunragit.
ENGLAND:										
2. England, N.E.										
YORKSHIRE	Average	Average	Under	Average	Under	Under	Over	Over	Under	J. G. Wilson, Claret Park Gardens, Wakefield.
	Average; good	Under	Average	Over	Under	Average	Average; good	Over; very good	Average	W. Jackson, Babraham Hall Gardens, Baverley.
	Over; good	Under; good	Average; good	Average; good	Average	Under	Average; good	Under; good	Under	Jas. E. Hathaway, Baldersby Park Gardens, Burscough.
	Average; good	Under	Under	Under	Under	Average	Average; good	Average	Average	G. P. Bound, Grimston Park Gardens, Tadcaster.
	Over; good	Under; bad	Average	Average; bad	Average	Under	Average; good	Average; good	Average; bad	A. E. Sutton, Castle Howard Gardens, Welburn.
	Average; very good	Under; good	Under; good	Under; good	Under	Under	Over; very good	Average; good	Under	F. Johnson, Waverley Park, York.
3. England, E.										
CAMBRIDGESHIRE	Over	Under	Over	Average; good	Under	Under	Average; very good	Average; very good	Average	W. J. Sall, Wimpole Hall Gardens, Royston.
	Over; good	Under; bad	Average; good	Average; good	Under; good	Average; good	Over; very good	Over; very good	Average; good	R. Alderman, Babraham Gardens, Cambridge.
	Average; very good	Under	Over; very good	Under; good	Average	Under	Over; very good	Average	Under	Thomas Spooner, Meldreth Court Gardens, Royston.
	Under; bad	Under; very bad	Under; good	Average; good	Under; good	Under; good	Average; good	Over; very good	Under	Stephen Castle, Walpole, St. Andrews, Wisbech.
ESSEX	Average; good	Average; very good	Average; very good	Under	Average	Under	Over; very good	Over; very good	Average	Arthur Bullock, Coppell Hall Gardens, Epping.
	Average	Under	Under	Under	Average	Under	Over	Average	Under	H. Lister, Easton Lodge, Dunmow.
	Over; good	Under	Under	Under	Under	Under	Average	Average; good	Under	H. W. Ward, Lime House, Rayleigh.
	Average; good	Under; bad	Under; bad	Under; good	Average; very good	Under; good	Average; very good	Average; good	Under; good	William Johnson, Stansted Hall Gardens, Stansted.
LINCOLNSHIRE	Over; good	Under	Under	Average	Under	Under	Average	Over	Under	J. Vinton, Hurlingham Manor Gardens, Grantham.
	Average; good	Average	Over; good	Average; good	Average	Average	Average; good	Average	Average	Frederick Barton, Hainton Hall Gardens, Lincoln.
	Average; good	Under; good	Average; good	Under; bad	Under	Under	Average; good	Under; good	Under	H. Louth, Boothby Hall Gardens, Grantham.
NORFOLK	Average	Under	Under	Under	Average; good	Average; good	Average; good	Over; very good	Average; good	J. Wynn, Sedgford Hall Gardens, near King's Lynn.
	Over; very good	Under; bad	Average; good	Average; good	Over; very good	Average; good	Over; very good	Over; very good	Average; good	Lewis Smith, Shotesham Park Gardens, Norwich.
	Average; good	Under	Under; bad	Under; bad	Under; bad	Under; bad	Over	Over	Average; good	J. W. Bradbrook, The Gardens, Ketteringham Park, Wymondham.
	Average; good	Under; good	Under	Average; good	Under	Under	Average; good	Over; good	Under	W. M. Thurston, Wotton Park Gardens, North Walsham.
	Over; very good	Under; very good	Under (except Victoria which is over); very good	Over; very good	Under; very good	Under; good	Over; very good	Over; very good	Under	Thomas H. Cook, Royal Gardens, Sandringham.
	Average	Under	Average	Average	Average	Under	Average; except B. (strawberries)	Average	Average	Wm. Allen, Garden Park Gardens, Norwich.
	Average	Under	Under	Under	Over	Under; bad	Average	Over	Average	W. O. Stow, Hall Gardens, Downham Market, Norfolk.
	Average	Under	Under	Under	Under	Under	Average	Over; good	Under	W. Shingler, Melton Constable Gardens, Norfolk.
	Average; very good	Under; good	Under; bad	Under; good	Under	Under	Average; very good	Over; very good	Under	G. D. Davison, Westwick Gardens, Norwich.
SUFFOLK	Average; good	Average; good	Under; good	Average; good	Over; good	Under; good	Over; good	Under; bad	Average; good	Thos. Simpson, Hingham Gardens, Wangford.
	Average; good	Average; good	Average	Average	Average	Average; good	Over; very good	Over; very good	Average	Alfred Andrews, High House Gardens, Campsea Ash.
	Average; good	Under	Under	Average; good	Under	Average	Over; good	Average	Average	Wickham Market.
	Average; good	Under; very bad	Average	Average; good	Under	Average	Average	Over	Under	William Messenger, Woolverstone Gardens, Ipswich.
	Over; very good	Under; good	Under; good	Average; good	Under; good	Average; good	Over; very good	Over; good	Over; good	Herbert Coster, Ickworth Park Gardens, Bury St. Edmunds.
	Over; very good	Under; good	Under; good	Average; good	Under; good	Average; good	Over; very good	Over; good	Over; good	James Hilson, Finton Hall Gardens, Bungay.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW-BERRIES.	NUTS.	NAME AND ADDRESS.
3. England E.										
SUFFOLK (contd.)	Average; good	Average; good	Under	Over	Average	Under	Average; good	Average	.....	B. Goodacre, The Gardens, Moulton, Faddocks, Newmarket.
	Average; good	Under; good	Under; bad	Over; very good	Average; good	Under; good	Over; very good (except B. Currants)	Average; good	Average; good	A. K. Turner, Orwell Park Gardens, Ipswich.
4. Midland Counties.										
BEDFORDSHIRE.....	Average; good	Average	Average	Under; bad	Under	Under	Over; good	Average; good	Average	F. J. Foster, Cranfield Court Gardens, Woburn Sands.
	Average; good	Average; good	Over; good	Average; good	Under; good	Under; good	Average	Average; very good	.....	C. H. Clark, Chicksands Priory Gardens, Bedford.
	Average; good	Average	Over; very good	Over; very good	Under; bad	Under; bad	Over; very good	Average; good	Average; good	H. W. Nutt, Amphill Road, Flitwick.
	Average; good	Average	Average; good	Average; good	Average	Under	Average	Average	Average	Geo. Mackinlay, The Gardens, West Park, Amphill.
	Average; good	Under; bad	Over; good	Average; good	Under	Under	Average	Average	Under	Wm. J. Palmer, Frixfield Gardens, Woburn.
	Under; good	Average	Average	Over	Average	Average	Over (Black Currants under)	Average; good	.....	Laxton Bros., Bedford.
BUCKINGHAM-SHIRE	Average	Under; bad	Under; bad	Average; good	Under	Under	Over; good	Average; good	Under	Jam. Wood, Hedsor Park Gardens, Bourne End.
	Under; good	Under; bad	Under; good	.....	Under; bad	.....	Average; good	Average; good	.....	James MacGregor, Montmore Gardens, Leighton Buzzard.
	Under; good	Under; bad	Under; good	Under; good	Under; bad	Under; bad	Average; good	Average; good	Under; bad	W. H. Hutton, Watlington Clinton Gardens.
	Average; good	Under; good	Over; good	Average; good	Average	Under	Average	Average; good	Over	Chas. Page, Dropmore Gardens, Maidenhead.
CHESHIRE	Over	Under	Under	Average	.....	.....	Over	Average	.....	Peter Wilkinson, The Gardens, Walton Lea, near Warrington.
	Over	Over	Under	Under	Average	Under	Over	Over	Average	Charles Flack, Cholmondeley Castle Gardens, Malpas.
	Average	Under	Average	Over	.....	.....	Over; very good	Over; good	Average	W. I. Wright, Alderley Park Gardens, Chelford.
DERBYSHIRE	Average; good	Under	Under	Under (Morellos good)	.....	.....	Average; good	Average; good	.....	Bales Marbles, Mr. Uttoaster New Road, Derby.
	Average; good	Average; very good	Under	Average; good	.....	Average	Average; good	Average; good	.....	John Maskefield, Darkey Abbey Gardens, Derby.
	Average; very good	Under	Under	Average; very good	.....	.....	Average; good	Over; good	.....	F. Johnson, Chatsworth, Chesterfield.
	Average; good	Under	Under	Average; good	.....	Under; bad	Average; good	Average; very good	.....	J. Lull, Osmaston Manor Gardens, Derby.
HERTFORDSHIRE	Average; very good	Under; good	Average; very good	Over; very good	Under; good	.....	Average; very good	Average; good	Average; very good	H. Rivers & Son, Sawbridgeworth.
	Average; good	Under; good	Under; good	Over; very good	Under; good	.....	Average; very good	Average; good	Average	H. Pim, Hatfield House Gardens, Hatfield.
	Average	Under	Under	Average	Under	Under	Over	Average; good	Average	George Keif, Dancsbury Gardens, Welwyn.
	Under; good	Under; bad	Average; good	Over; very good	Under; bad	Under; good	Over; good	Over; very good	Under	Edwin Beckett, Aldenham House Gardens, Hatfield.
	Over; good	Under; bad	Over; good	Under	Under	Under; bad	Over; very good	Over; very good	Average	Wm. Whitelaw, Batch Wood, St. Albans.
	Average; good	Under; good	Average; bad	Over; very good (Morellos)	Under	Under	Over; very good	Over	Over; good	L. Martin, The Hoe Gardens, Welwyn.
LEICESTERSHIRE..	Over; good	Under; good	Under; good	Average; good	Under; good	.....	Average; good	Over; good	(Walnuts)	Daniel Roberts, Prestwold Gardens, Loughborough.
	Over; very good	Under; very good	Average; good	Over; very good	Under; good	Under	Over; good	Over; very good	Average; good	W. H. Divers, Belvoir Castle Gardens, Grantham.
	Average; good	Average; good	Average; good	Average	Under; good	Under; good	Over; good	Over; good	Average	F. Tibbott, Rileston Hall Gardens, Leicester.
	Over; good	Average; good	Over; very good	Under	Under	Under	Under; good	Over; very good	Over; good	John Harrison, Overdale, Aylestone, Leicester.
NORTHAMPTON-SHIRE	Over; good	Average; good	Average; good	Under; bad	.....	Under; good	Average; good	Average; good	.....	Robt. Johnson, Wakefield Lodge Gardens, Stony Stratford.
	Average; good	Average; good	Average; good	Under	Under	Average	Over; very good	Under	Over	Thos. Masters, Estate Office, Shuckburgh, Daventry.
	Average	Average; good	Under	Average	Under	.....	Over; very good	Over; good	Under	F. J. Foster, Biddleston Park Gardens, Brackley.
NOTTINGHAM-SHIRE	Over; very good	Under; good	Under; bad	Average; very good	Over; very good	Under; bad	Over; very good	Over; very good	Average	James B. Allan, Osberton Gardens, Worksop.
	Under; good	Under	Under	Average	Under	Under	Average	Over	.....	J. R. Pearson & Sons, Lowdham.
	Average	Under	Under	Average	Average	Under	Average	Average	.....	A. W. Cullib, Newstead Abbey Gardens, Nottingham.
OXFORDSHIRE.....	Over; very good	Under; very good	Over; very good	Over; good	Average; good	Under	Over; very good	Over; very good	Over; very good	John A. B. Shiplake, Court Gardens, Henley-on-Thames.
	Average	Under	Over	Average	.....	Under	Over; good	Over; good	.....	A. J. Long, Wyfold Court Gardens, Reading.
	Over; very good	Average; good	Over; very good	Average; bad	Average; good	Under; good	Over; very good	Average; good	Average; good	F. W. Pearce, Eynsham Hall Gardens, Witney.
	Average; good	Under; good	Average; good	Under; bad	Over; very good	Under; bad	Over; good	Average; good	.....	A. W. Perry, Middleton Park Gardens, Bicester.
	Average; good	Under; good	Average; good	Average; good	Under; good	Under; good	Average	Average; good	Under	C. J. Munday, Nunham Park Gardens, Oxford.
	Average; good	Under	Average; good	Under	Under	Under; bad	Over; very good	Average; good	Under	F. Whiting, The Gardens, Shotover Park, Wheatley.
	Average	Under	Average	Average	Under	Under	Average	Over; very good	Average; good	Geo. Hunter, Blenheim Gardens, Woodstock.
SHROPSHIRE.....	Average; good	Average; good	Over; good	Under	Under	Under	Over; good	Over; very good	Over; good	Alex. Haggart, Moor Park, Ludlow.
	Over; good	Under	Under	.....	.....	.....	Under	Under	Average; good	C. Roberts, Stanway Lodge, Rushbury, Church Stretton.
	Average	Average	Under; good	Average	Under; bad	Under; bad	Average; good	Average; bad	Average	J. Taylor, The Gardens, Hardwicke, Grange, near Shrewsbury.
	Average	Under	Under	Average	Average	Average	Under	Average; good	Under	S. Taylor, The Quinta Gardens, Oswestry.
STAFFORDSHIRE	Under	Under	Average	Average	Under; very good	Under; very good	Over; very good	Average; good	Average	George Rishbrough, Hutton Grange Gardens, Shifnal.
	Average	Average	Average	Average	Under	Under	Over; good	Average; good	Under; bad	Edwin Gilman, Ingestree Gardens, Stafford.
	Average	Under	Under	Under	Average	Under	Over	Average	.....	A. Cheney, Shenstone Court Gardens, Lichfield.
	Average; good	Average; good	Average; good	Over; very good	.....	Under; bad	Over; very good	Average; very good	Under	T. Bannerman, Blithfield Gardens, Rugby.
	Average; very good	Average; good	Over; very good	Under; good	.....	.....	Over; very good	Average; very good	Over	H. Collier, Rolleston Hall Gardens, Burton-on-Trent.

CONDITION OF THE FRUIT CROPS—(continued).

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NEC. TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRILS.	NUTS.	NAME AND ADDRESS.
5, Southern Counties.										
SUSSEX (contd.).....	Average; good Over; very good	Under; good Under; very good	Over; good Average; very good	Average; good Under; good	Under; bad Under; good	.....	Average; good Over; very good	Average; good Average; very good	Average; good Under; good	W. A. Cook, 11, Gardens, Leonardslee, Horsham.
WILTSHIRE.....	Average; good Average; good	Under; good Under; good	Under; good Under; good	Average; very good Average; good	Under; good Average; good	.....	Average; good Over; good	Under; good Under; good	.....	W. J. Langridge, Old Hall Gardens, Burgess Hill. George Brown, Bowood Gar- dens, Calne. Thomas Challis, The Gardens, Wilton House, near Salisbury.
7, England, N.W.										
LANCASHIRE.....	Under; good	Under; good	Under; good	Under; good	.....	.....	Under; good	Under; good	.....	F. F. Houghton, Knowsley Gardens, Prescot.
WESTMORELAND...	Average; good Average; very good Under	Under Under	Average; good Average; good	Under; good Under	.....	.....	Average; good Average; good	Average; very good Average; very good	Under; bad	Thomas Wyton, Abbeystead Gardens, Lancaster. W. A. Miller, Underley Hall Gardens, Kirby Lonsdale. F. Clarke, Lowther Castle Gardens, Penrith.
.....	Average; good	Under	Average; good	Average	.....	Average	Average	Under	Under	J. C. Moorhouse, Dalton Hall Gardens, Burton.
8, England, S.W.										
CORNWALL.....	Average; good Under	Over; good	Average	.....	.....	.....	Over; good	Average; good	.....	Walter Caton, The Lodge, Helme Lodge, Kendal.
.....	Under	Under; good	Under	Average	Under; bad	.....	Average; very good Over; good	Average; very good Over; very	.....	W. Andrews, Treogilnan, Irao.
.....	Under; bad	Under; bad	.....	Under; good	Under; good	.....	Over; good	Over; very	.....	Frank J. Clark, Teldy Park Gardens, Camborne.
DEVONSHIRE.....	Average; good Over; good Over	Under Average; good Under	Under Average; good	Under Average; good Under	Average; good Under; good Under; bad	Under	Average; good Over; very good Over; very good	Over; very good Average	Average; good	G. H. Maddern, Trewidden, Buryas Bridge. L. E. Brytton, Castle Hill Gardens, South Molton. Geo. Baker, Membland, New- ton Ferrers, near Plymouth.
.....	Under	Average	Average	Under	Under	Average	Average; good	Average; good	Average	James Mayne, Bickton Gardens, Buddleigh Salterton.
GLOUCESTER- SHIRE	Over; good Average	Average; good Under	Average; good Average	Over; good Average	Under; bad Under; bad	Under; bad Under	Over; good Average; good	Over; very good Over; good	Average; bad Average	John R. Tooley, Toddington, Winchcombe. William Keen, The Gardens, Bowden Hall, near Gloucester.
.....	Average; good Average; good Average	Under Average Average	Average; good Average	Under Average	Under Under	Average Under	Over; good Average; good Average; good	Average; good Average; good	Average	John Banting, Teetworth Gar- dens, Falwell.
.....	Average; good Average; good Average	Under Average Average	Average; good Average	Under Average	Under Under	Average Under	Over; good Average; good Average; good	Average; good Average; good	Average	William Nash, Badminton Gardens, Gloucester.
.....	Average; good Average	Under; good Average	Average; good Average	Average; good Under	Under; good Under	Under Under	Over; good Average; good	Over; good Average; good	.....	Wm. J. Jeffries, Cirencester.
.....	Average; good Average	Under; good Average	Average; good Average	Average; good Under	Under; good Under	Under Under	Over; good Average; good	Over; good Average; good	.....	F. C. Walton, Stanley Park Gardens, Stroud.
.....	Average; good Average	Under; good Average	Average; good Average	Average; good Under	Under; good Under	Under Under	Over; good Average; good	Over; good Average; good	Average	Arthur Chapman, Westonbirt Gardens, Tetbury.
HERTFORDSHIRE.	Average; good Average; good Average	Under; good Under; very good	Under; good Under; good	Average; very good Average; good	Under; good Under; very good	Under; good Under; very good	Average; good Average; good	Average; good Over; good	Average; good Average	H. Berry, Higham Court Gardens, Gloucester.
.....	Average; good Average; good Over; good	Under; good Under	Average; good Under	Under; bad Over; good Under	Under; good Under	Under Under	Over; good Average; good	Average; good Over; good	Over; good	Thos. Watkins, Newport Hall Gardens, Evesham.
.....	Average; good Average; good Over; good	Under; good Under	Average; good Under	Under; bad Over; good Under	Under; good Under	Under Under	Over; good Average; good	Average; good Over; good	Over; good	A. Buckingham, Stannage Park Gardens, Brampton Brian.
SOMERSETSHIRE...	Average; good Average; good Over; good	Under; good Under	Average; good Under	Under; bad Over; good Under	Under; good Under	Under Under	Over; good Average; good	Average; good Over; good	Over; good	Thos. Spencer, Goodrich Court Gardens, Ross.
.....	Over; good	Under; good	Under	Under	Under	Under	Over; good	Under; good	.....	George Mullins, Eastnor Castle Gardens, Ledbury.
.....	Average; good Average; good Average	Average; good Under	Average; good Under	Average Under	Under; bad Under	Average Under	Average; good Average; good	Over; good Average; good	Over	Thos. Coomber, The Hendre Gardens, Monmouth.
.....	Average; good Average	Under Under	Average; good Under	Average Under	Under Under	Under Under	Average; good Average; good	Over; very good Average	Under	King's Acre Nurseries, Ltd., Hereford.
.....	Under; good	Under; good	Under; good	Under; very good	Under; good	Under; good	Under; very good	Over; good	Under; good	George Shawley, Halswell Park Gardens, Bridgwater.
.....	Under	Average	Under	Under	Under	Under	Average	Average	Average	William Hallett, Cossington, near Bridgwater.
.....	Over; good	Under; good	Under	Under	Under	Under	Over; good	Under; good	.....	J. T. Rushton, The Gardens, Barons Down, Dulverton.
.....	Average; good Average; good Average	Average; good Under	Average; good Under	Average Under	Under; bad Under	Average Under	Average; good Average; good	Over; good Average; good	Over	F. J. Little, Knowle Gardens, Dunstable.
.....	Average; good Average	Under Under	Average; good Under	Average Under	Under Under	Under Under	Average; good Average; good	Over; good Average; good	Average	G. H. Head, The Gardens, Kingsdon Manor, Taunton.
WORCESTERSHIRE	Over; good Under; good	Under; good Under; good	Average Under	Average Under	Under Under	Under Under	Average; good Average; good	Over; good Average; good	Over	Samuel Kidley, Chipley Park, Wellington.
.....	Average; good	Under; good	Average; good	Over; good	Under; bad	Under; good	Average; good	Average; good	Over; good	E. A. Hussey, Leigh House, Chard.
.....	Over; good	Under; good	Average	Average	Under	Under	Average; good	Over; good	Over	A. Young, Witley Court Gar- dens, Worcester.
.....	Under; good	Under; good	Under	Under	Under	Under	Average	Average	Under	C. A. Bayford, Davenham Gardens, Malvern.
.....	Average; good Over	Under; good Under	Average; good Under	Over; good Average	Under; bad Under	Under; good Under	Average; good Average; good	Average; good Average; good	Over; good	W. Crump, Madresfield Court Gardens, Malvern.
WALES:										
DENBIGHSHIRE.....	Average; good Average	Average Under	Under Average	Under Average	Under Under	Under Under	Average; good Over; very good	Average; good Over; good	.....	J. A. Jones, The Gardens, Chirk Castle.
FLINTSHIRE.....	Over; very good Average	Under Under	Under Under	Under Under	Under; bad Under	Under; bad Average	Over; very good Average	Over; very good Average	.....	J. Martin, Bryn Estyn Gardens, Wrexham.
GLAMORGAN- SHIRE	Average; good Under	Under; good Under	Under; good Under	Under; good Average	Average; good Under	.....	Over; good Average	Over; good Average	Over	John Forsyth, The Gardens, Hawarden Castle, Chester.
.....	Average; good Under	Under Under	Under; good Under	Under; good Average	Average; good Under	.....	Over; good Average	Over; good Average	Over	James Barnard, Mostyn Hall Gardens, Mostyn.
MERIONETHSHIRE	Over; good good Over	Average; good Average	Average; good Under	Under; good Average	.....	.....	Over; very good Average	Under; fairly good Average	.....	R. Milner, The Gardens, Margam Park, Port Talbot.
PEMBROKESHIRE	Over; good good Over	Average; good Average	Average; good Under	Under; good Average	.....	.....	Over; very good Average	Under; fairly good Average	.....	C. T. Warmington, Penll- ger Gardens, Swansea.
.....	Average; good Over	Average; good Under; bad	Over; good Over; bad	Average; good Under	Over; very good Under	.....	Average; good Over; good	Average; good Average	Average	John S. Higgins, Rhûg Gar- dens, Corwen.
RADNORSHIRE	Average; good Over; very good Over	Average; good Under; bad Under	Over; good Over; bad Under	Average; good Under	Over; very good Under	.....	Average; good Over; good	Average; good Average	Average	Geo. Griffin, Sloback Park Gardens, Hay-on-Wye.
.....	Over; very good Over	Under; bad Under	Over; bad Under	Average; good Under	Over; very good Under	.....	Average; good Over; good	Average; good Average	Under	W. A. Baldwin, The Gardens, Clynnfach, Boncath.
.....	Over; very good Over	Under; bad Under	Over; bad Under	Average; good Under	Over; very good Under	.....	Average; good Over; good	Average; good Average	Under	J. MacCormack, Maesllwch Gardens, Glasbury.
.....	Over; very good Over	Under; bad Under	Over; bad Under	Average; good Under	Over; very good Under	.....	Average; good Over; good	Average; good Average	Under	C. M. Nixon, Knighton Gar- dens.
.....	Over; very good Over	Under; bad Under	Over; bad Under	Average; good Under	Over; very good Under	.....	Average; good Over; good	Average; good Average	Under	Mr. Wilton Palliser, Horton Manor Gardens, Horton.

CONDITION OF THE FRUIT CROPS—continued

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NEC- TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
IRELAND:										
9, Ireland, N.										
DUBLIN	Under; good	Under; good	Average; bad	Average; very good	Under; good	Average; good	Over; very good	Over; very good	Average	A. Campbell, St. Anne's Gar- dens, Clontarf.
MAYO	Under; good	Under; bad	Under; bad	Average; good	Average	Under; bad	Average; good	Under	Under; bad	P. Savage, Belleek Manor, Ballina.
MEATH	Under	Under	Under; bad	Under	Under	Under	Under	Average	—	Michael McKewen, Julians- town, Drogheda.
	Over	Average; good	Under; bad	Average; good	Average; good	Under; bad	Over	Average; good	Average; good	J. B. Dow, Dunsany Castle Gardens.
TYRONE	Over; good	Under; good	Under	Under	Under	Under	Average (B. Currants over); good	Over; very good	—	Frederick W. Walker, Son House Gardens, Sion Mills.
WESTMIDLAH	Average	Under	Under	Average	—	Average	Average	Average; good	Under	G. S. Budge, Pakenham Hall Gardens, Castlepollard.
10, Ireland, S.										
ATHLONE	Average; good	Average; good	Under; bad	Under; bad	Average; good	—	Average; good	Average; good	Average	J. J. Murray, Moydun Castle Gardens, Athlone.
CORK	Average	Under; very bad	Average	—	—	—	Average; good	Under; bad	—	M. Colbert, Aghern, Conna.
	Average; good	Under; good	Under; bad	Average; good	—	—	Average; good	Average; good	—	"Horticulturist," 17, St. Patrick's Terrace, Magazine Road.
KILDARE	Under	Average	Under	Under	Under	Under	Average	Over	—	Frederick Bedford, Straffan House Gardens, Straffan Station.
	Average	Under	Average	Average	Average	Under	Over	Average	Average	Alex. Black, Carton, May- nooth.
ROSCOMMON	Average; good	Under	Average	Under	Average	—	Average; good	Under	—	Terence Rogers, Frenchpark House Gardens, French- park.
WATERFORD	Average; good	Average; good	Under; good	Over; very good	Average; very good	—	Over; very good	Average; good	—	Thomas Dunn, Strancally Castle Gardens, Tallow.
	Over; very good	Under	Average	Average	Average	Under; bad	Over; very good	Over; good	Average	David Crombie, Curraghmore Gardens, Portlaw.
CHANNEL ISLANDS:										
GUILDFORD	Under; good	Under; good	Under	Average;	Average	—	Average;	Average;	—	C. Smith & Son, Caledonia Nursery, Guernsey.
JERSEY	Average; good	Under; bad	Under; good	Under; bad	Under; good	Average; bad	Under; good	Average; bad	—	Thomas Sharman, Imperial Nursery, St. Mark's Road, St. Helier.
ISLE-OF-										
MAN:	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	—	Over; good	Average; good	—	James Inglis, Brunswick Road Nursery, Douglas.

SUMMARY.

SCOTLAND.										
Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nec- tarines.	Apricots.	Small Fruits.	Straw- berries.	Nuts.	
Number of Records	(52)	(55)	(50)	(57)	(22)	(25)	(62)	(12)	(7)	
Average	19	9	26	30	12	12	31	23	4	
Over ...	33	3	6	10	2	1	30	23	2	
Under ...	10	44	28	17	8	13	1	16	1	
ENGLAND.										
Number of Records	(173)	(172)	(170)	(166)	(136)	(127)	(173)	(173)	(114)	
Average	106	42	69	78	37	36	87	89	65	
Over ...	17	2	20	23	6	—	76	69	15	
Under ...	20	124	81	59	93	101	10	15	34	
WALES.										
Number of Records	(12)	(12)	(12)	(12)	(9)	(4)	(12)	(12)	(9)	
Average	6	7	2	2	1	1	7	4	4	
Over ...	5	3	—	1	1	—	5	3	1	
Under ...	1	7	7	6	6	3	—	1	3	
IRELAND.										
Records	Apples.	Pears.	Plums.	Cherries.	Peaches and Nec- tarines.	Apricots.	Small Fruits.	Straw- berries.	Nuts.	
Number of Records	(14)	(14)	(14)	(13)	(9)	(7)	(14)	(14)	(7)	
Average	7	4	2	7	7	2	8	7	5	
Over ...	3	0	1	1	0	5	4	4	0	
Under ...	4	10	9	4	2	5	1	3	2	
CHANNEL ISLANDS.										
Number of Records	(2)	(2)	(2)	(2)	(2)	(1)	(2)	(2)	—	
Average	1	—	—	1	1	1	1	2	—	
Over ...	—	—	—	—	—	—	—	—	—	
Under ...	1	2	2	1	1	—	1	—	—	
ISLE OF MAN.										
Number of Records	(1)	(1)	(1)	(1)	(1)	—	(1)	(1)	—	
Average	—	—	—	—	—	—	—	—	—	
Over ...	—	—	—	—	—	—	—	—	—	
Under ...	1	1	1	1	1	—	—	—	—	
GRAND SUMMARY, 1911.										
Number of Records	(264)	(257)	(259)	(244)	(179)	(165)	(264)	(264)	(136)	
Average	139	60	102	122	59	42	134	130	78	
Over ...	88	5	29	34	9	1	117	99	18	
Under ...	37	192	129	88	111	122	13	35	40	
SUMMARY OF 1910 FOR COMPARISON.										
Number of Records	(226)	(222)	(221)	(216)	(154)	(146)	(227)	(226)	(123)	
Average	41	24	50	74	68	35	142	118	36	
Over ...	5	7	5	18	1	45	92	—	—	
Under ...	180	187	165	137	68	109	40	16	—	

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the sender. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Editors and Publisher.—Our Correspondents would observe delay in obtaining answers to their communications, and save us much time and trouble, if they would first observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications relating to publication, or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturalists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR AUGUST.

TUESDAY, AUGUST 1—
Roy. Hort. Soc. Coms. meet. Scottish Hort. Assoc. meet.

WEDNESDAY, AUGUST 2—
Bishop's Waltham Fl. Sh.

THURSDAY, AUGUST 3—
Roy. Lancashire Agric. Soc. Sh. at Bury (4 days).
Weston-super-Mare Fl. Sh. Holyport Cottagers' Hort. and Industrial Soc. Sh.

SATURDAY, AUGUST 5—
Bot. Soc. Sweet Pea Show. Soc. Française d'Hort. de Londres meet.

MONDAY, AUGUST 7—
Bank Holiday. Swanage Fl. Sh.

TUESDAY, AUGUST 8—
Leicester Fl. Sh. (2 days). Knaresborough and District Fl. Sh. Clevedon Fl. Sh. (2 days).

WEDNESDAY, AUGUST 9—
Brecon Fl. Sh.

THURSDAY, AUGUST 10—
Taunton Deane Fl. Sh. Soc. Nationale d'Hort. de France (Paris) Exh. Prendergast Fl. Sh. at Haverfordwest. Border Sweet Pea Soc. Sh. at Coldstream.

SATURDAY, AUGUST 12—
Green and District Fl. Sh.

MONDAY, AUGUST 14—
United Hort. Benefit and Prov. Soc. Com. meet.

TUESDAY, AUGUST 15—
Roy. Hort. Soc. Coms. meet. (no exhibition). Roy. Oxfordshire Fl. Sh. American Gladiolus Soc. Sh. at Baltimore, U.S.A. (4 days).

WEDNESDAY, AUGUST 16—
Hemel Hempstead Fl. Sh.

THURSDAY, AUGUST 17—
Roy. Hort. Soc. of Aberdeen Sh. in Duthie Park, Aberdeen (3 days). Deal, Walmer & Dist. Fl. Sh.

TUESDAY, AUGUST 22—
Roy. Hort. Soc. of Ireland Fl. Sh.

WEDNESDAY, AUGUST 23—
Shropshire Hort. Soc. Sh. at Shrewsbury (2 days).

THURSDAY, AUGUST 24—
Peebleshire Hort. Soc. Fl. Sh.

SATURDAY, AUGUST 26—
Symington Fl. Sh. Hawick Fl. Sh.

TUESDAY, AUGUST 29—
Roy. Hort. Soc. Coms. meet. (Lecture at 8 p.m. by Mr. Fred. Enock, F.L.S.).

WEDNESDAY, AUGUST 30—
Nat. Vegetable Soc. Sh. in Roy. Hort. Soc. Hall, Westminster. Irish Gard. Assoc. and Benev. Soc. meet. Cheshire Agric. Soc. Sh. at Chester.

THURSDAY, AUGUST 31—
Dundee Fl. Sh. (3 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at *London*—*W. & A.*

ACQUA TEMPERE VEG.
LONDON, W. & A., Monday, July 26 (6 p.m.): Max. 77°; Min. 64°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Tuesday, July 27 (10 a.m.)*—*Fair*, 30°; *Temp.* 50°; *Weather*—Sunshine.

PROVENCE. *At Arles, July 26*: Max 73° Cambridge; Min 57° *Reims* N.W.

The Fruit Crops.

In the present issue we publish our customary report on the outdoor fruit crops, and we do so with some satisfaction, because the report shows that, as compared with last season, the present prospects are distinctly favourable. This much may be said, although it is only too probable that the drought which still prevails may have serious effects in gardens and plantations where the soil is lacking in moisture-holding qualities.

Taking Apples first, we find that, out of 264 returns, there are only 37 which describe the crop as being less than the average, whilst 139 reporters have average crops and 88 have crops which exceed the average. On glancing at the figures for 1910, it will be seen that these were far less favourable, for the total of 226 returns was composed of 180 below the average and only 46 which were equal to, or above, the average. In 1909 the returns were better than last year, but less good than those of the present season. Thus, the Apple crop is of a gratifying nature, and it is to be hoped that rain will be forthcoming before the drought causes a serious thinning of the fruits. In some cases within our observation the trees are already relieving themselves of part of the crop, but in these particular instances there are, fortunately, more than sufficient fruits left to ripen. It is interesting to note that the returns from England, Wales, Scotland, and Ireland show almost the same proportion of average crops, which is somewhat unusual.

The Pear crop is less satisfactory than that of Apples, and scarcely, if anything, better than last year, while it is much less favourable than the crop of 1909. Out of 257 returns, as many as 192 describe the crops as under the average; there are 60 average crops and only five which are estimated as exceeding the average. Next week we hope to print some of the remarks of our correspondents on the circumstances which they believe to have operated for and against the crops. In respect to Pears, it should be remembered that, if the sunless character of the season 1909 was the cause of the failure last year, the paucity of the present crops may also be largely due to the unfavourable weather which prevailed last summer, for it was certainly as bad as in the previous year. But it is very difficult to apportion the blame with any approach to certainty, and every fruit-grower knows well enough that the weather conditions in the spring of the present year, when Pear trees should have been setting their fruits, was exceptionally unpropitious. The failure of the Pear crop appears to be general, for the returns, as in Apples, show much the same proportion of under-average crops in the various districts. Plums promise to be much more plentiful than last year, when there were 165 reports of under-average crops out of 221 returns. This year there are only 128 crops under the average out of 259 returns. The average crops last year were 50, whilst this season they are 102, and instead of six over-average crops last year there are now 29. Cherries afford another instance

of a satisfactory yield, as compared with last year, the returns being nearly equal to those of 1909. Out of 244 reports, there are 122 which describe the crop as equal to the average, 34 which state over-average crops, and 88 cases in which the yield is deficient. For this crop the returns from the English counties, particularly Kent, are the more valuable, and the figures for this county are 78 average crops, 23 above the average, and 59 less than the average yield.

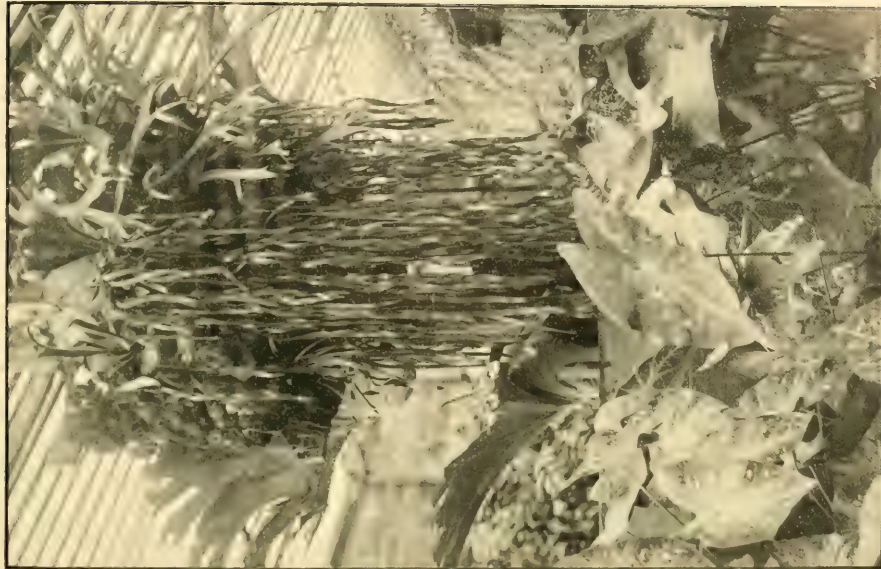
Peaches, Nectarines and Apricots were all badly affected by unfavourable weather in spring, whilst the trees were in flower, and, in addition, the trees can scarcely have matured as well as usual last season. Out of 179 returns for Peaches and Nectarines, there are 111 cases in which the crops fail to equal the average, and only nine reporters in the whole kingdom are in the satisfactory position of having yields which exceed the average. There are 165 reports upon Apricots, and 122 of these state that the crop is inferior to the average. In the London district Peaches, Nectarines and Apricots are less satisfactory than they have been for several years past, and the reason generally advanced by those directly concerned in the cultivation of the trees is the cold spell which occurred in April.

Under the heading "Small Fruits" are grouped red and white Currants, Gooseberries, Blackberries, Raspberries and Loganberries, and our returns year after year show clearly enough that these fruits crop with a greater certainty than Apples, Pears, Plums and Peaches. This year, out of 264 returns, there are 134 reports of average crops, 117 in which the yield is described as exceeding the average, and only 13 cases in which the average is not reached. This result is more favourable than last year, but scarcely equal to the returns for 1909, when there were only seven reports of under-average crops in the kingdom. Strawberries were not so plentiful this year as last season, but the yield, particularly from the later ripening varieties, was equal to that of 1909. Respecting Nuts, including both Filberts and Walnuts, the returns show that in 96 cases the crops are equal to the average, whilst 40 are deficient.

OUR SUPPLEMENTARY ILLUSTRATION shows two fine specimens of uncommon Ferns growing in Brisbane Botanic Gardens. The plant of *Platycerium grande* has the two types of fronds found in these Ferns exceptionally well developed, the barren ones forming large, erect, fan-shaped laminae, while the fertile fronds are more or less lax and pendulous, of stag-horn or elk-horn-like outline, and with the spores distributed in a dense, even layer over the dorsal surface near the tips. The size of the specimen may be judged from the well-grown *Caladium* foliage below it. The other Fern is a magnificent example of *Ophioglossum pendulum* (Ribbon Fern) growing from a plant of *Platycerium alcicorni*. In this case it is the contrast between the length and abundance of the fronds of this species of Adder's Tongue Fern and those of our little native species, *O. vulgatum*, which excites the admiration of the home botanist. In



PLATYCERIUM GRANDE, A HANDSOME
NORTH AUSTRALIAN SPECIES.



FERNS IN BRISBANE BOTANIC GARDENS.

OPHIOCLOSSUM PENDULUM (RIBBON FERN)
GROWING ON PLATYCERIUM ALCICORNE.

fig. 34 is illustrated a fine specimen of *Polypodium irioides* var. *ramosum*, found wild by Mr. MACKAY, in North Queensland, and introduced some years ago by Mr. W. BULL, of Chelsea, under the name of "lobatum," which was altered to "ramosum." Some of the sporophylls from this plant, such as the one now illustrated in fig. 34, shown even more beautiful fronds than the parent. In fig. 35 is represented a very curious species of *Polypodium*, *P. rigidulum* var. *Vidgenii*, which is dimorphic, bearing two distinct types of fronds, the larger ones somewhat resembling those of *P. vulgare*, and the short, dense, stalkless ones those of the Oakleaf Fern. In a communication to Mr. DRYVER, to whom we are indebted for the photographs, Mr. BAILEY refers to a beautiful variety of this species found by his nephew having fronds much more acutely and finely cut. A form similar to this and perhaps identical with it was included in Messrs. H. B. MAY & SONS' exhibit at the Olympia Show. It resembled *P. Knightii*, but the fronds had a more lucent surface, and were not so much divided.

ROYAL HORTICULTURAL SOCIETY.—The next meeting will be held in the Society's Hall, Vincent Square, Westminster, on Tuesday, August 1. The lecture by Mr. R. IRWIN LYNCH has been postponed to a later meeting.

ROYAL HORTICULTURAL SOCIETY'S EXAMINATION. From the list of successes in the examination in horticulture held on April 5, we notice that 202 candidates entered for the Society's general examination and 6, in the junior division. Of the senior candidates, 33, or 16 per cent., secured places in the first class; 95, or 48 per cent., in the second class; while 69, or 35 per cent., appear in the third class. Only one candidate failed altogether. Of the 68 juniors, four were placed in the first, 18 in the second, 25 in the third, and 19 in the fourth class. G. M. GROVER, Sturley College, Warwickshire, heads the list of seniors in Class I, whilst H. C. ELSDEN, Technical School, Chelmsford, occupies the corresponding place in the junior division.

KING GEORGE'S GIFT TO THE VICEREGAL GARDENER. Prior to the departure of the Count from Dublin Castle, His Majesty sent for Mr. WATT, head gardener at the Viceroyal Lodge, under whose supervision the floral decorations at the Castle were carried out, and presented him with a diamond pin, bearing the King's monogram, surmounted by a crown.

SIR JOSEPH HOOKER, who entered upon his 95th year on June 30 last, has a paper on the Balsaminaceae of the State of Chitral in the *Kew Bulletin* for June, 1911. He enumerates eight species, mostly collected by officers of the Army. Among the contributors named are: General GATARE, Colonel Sir FRANCIS YOUNG-RUSSAND, Surgeon-Lieut.-Colonel HAMILTON, Major WALT, and Lieuts. TOPPIN and STRILING. In the past much has been done for horticulture and botany by the military, and it is pleasing to know that there are good followers. We know of none more enthusiastic than the late Colonel COFFEY, whose *Flora of South Wales* was a good success.

HIGH PRICE FOR GROWING PEAS.—We are informed that at a sale conducted recently by Mr. G. H. BANKS, auctioneer, of Kidderminster, a six-acre field of culinary Pea Senator fetched £44 per acre; and a 19-acre field of the same variety £25 per acre. Both crops were grown in the Stourport district. Senator was raised and introduced into commerce by Messrs. WEBB & SONS, of Wordsley. It was awarded a First-class Certificate by the Royal Horticultural Society on July 11, 1902, after trial in the R.H.S. gardens at Chiswick.

WHAT PIG-WEED TAKES FROM THE SOIL.—Under this somewhat striking title, the *Queensland Agricultural Journal*, quoting *Garden and Field*, points out the largeness of the quantity of plant-food taken from the soil by weeds. Chemical analysis shows that a ton of pig-weed, air-dried, contains five times as much potash, twice as much nitrogen, and just as much phosphorus as a ton of manure.

THE ORCHARDS OF CANADA.—Nothing can escape enumeration in these days, and among the latest objects to be subjected to the calculating eye of the census official are the fruit trees of Canada. According to the last official census, an article on this is contributed by Mr. H. MARTINET to *Le Jardin*, the Apple trees of Canada number upwards of 15 million, Peaches nearly 1½ million, Pears fewer than a million, Plums about 2½ million, and Cherries 1½ million; altogether, the fruit trees number some 21 million, excluding vines, of which there are nearly 3 million. This was in 1901, since which time the totals have been increased enormously, the growers of British Columbia alone having planted some 4½ million trees. It is estimated that there are now upwards of 30 million fruit trees in the Dominion, and that the



FIG. 34. *POLYPODIUM IRIOIDES* VAR. *RAMOSUM*.
(See "Our Supplementary Illustration," p. 70.)

capital value which the orchards of Canada represent is about 125 million pounds sterling; this on the basis of the allowance of £5 per tree.

DRYING FRUIT FOR MARKET.—The industry of drying fruit for commercial purposes is the subject of an interesting article by Mr. G. ERIC in *L'Agriculture Nouvelle*. This fruit-drying industry has reached a considerable magnitude both in California and also in the Austrian Tyrol. In the latter region it has developed very rapidly, thanks to the methods of co-operation which have been adopted, methods which concern themselves not only with the development of markets but also with the introduction of the best and most uniform processes of gathering, grading, preserving, and packing the fruit. The chief centres of the industry in the Tyrol are Bozen, Meran, and Wintschgan, near Innsbruck. The art of drying fruit successfully consists in the reduction of the amount of water contained therein to such a point that the fruits do not decay, and no further. Dried to this extent, the fruit remains soft and keeps its flavour; dried more, it loses both in quality and weight. Ripe fruits dry better and quicker than immature fruits, and the larger the fruit the better are the results achieved by drying. Fruits dried in their skins—Plums, Cherries, and Grapes—should be exposed first to

sun-drying, the temperature, which should be raised as the drying proceeds. Pears and Apples, on the other hand, are submitted at once to a fairly high temperature. They are bleached immediately after having been peeled. This is done best by exposing them to the vapour of sulphurous oxide. The time of drying varies with the nature of the fruit and with its state—whether whole or in pieces—and may be as brief as three or as long as eight hours. The cost of drying is extremely small.

KENT COMMERCIAL FRUIT SHOW.—A fruit show and conference will be held in conjunction with the Fat Cattle Show at Ashford on Monday and Tuesday, December 11 and 12. Lord NORTHBOROUGH has been appointed president of the fruit show and conference, and Mr. M. J. R. DUNSTAN, principal of the South-Eastern Agricultural College, Wye, chairman of committee. A committee has been elected by the various agricultural and horticultural associations of the county. The schedule embraces classes for Apples packed in boxes, maiden fruit trees and bottled fruits. The boxes to be used for the Apples must be of one of the two sizes adopted by the National Fruit Growers' Federation. The majority of the classes are open only to Kentish growers, but some are open to all. The exhibits are to be judged from a strictly commercial standpoint as to quality, size, and shape for general utility, and also as to the method of packing, so as to display the fruit in the most attractive form and to ensure safe carriage. The authorities of Wye College have arranged a fruit conference and packing demonstration on the first day of the show. Exhibits from traders are invited. The hon. secretary is Mr. W. B. BRAGGS, South-Eastern Agricultural College, Wye.

ROSE CANKER AND A NEW APPLE CANKER.—In the issue for May 13, p. 293, reference was made to the prevalence in this country of Canker in Roses, caused by the fungus, *Coniothyrium Fuckelii*. In the June number of *Phytopathology*, an American periodical devoted to the study of plant diseases, Mr. P. O'GARA records the presence of this disease in the United States and shows also that the same fungus is responsible for a canker of Apple twigs in that country. The spore bodies and spores formed in the cankers of the Apple are identical with those present in the Rose canker, and cross inoculations have clearly established the identity of the two diseases. This canker of the Apple affects the twigs and the stems of nursery stock just above the crown; the same fungus causes a rot of the fruit, circular, discoloured, and somewhat sunken areas being formed at the points of infection. Mr. O'GARA mentions a case in which serious affection of young Apple trees occurred in the immediate vicinity of a clump of wild Roses that were badly attacked by the same disease. Rose canker being frequently found in England, it will be interesting to know whether the fungus causing it is also capable of producing in this country a canker of the Apple such as occurs in the United States.

"THE WILD FLOWERS OF BA MOUTH AND THE NEIGHBOURHOOD."—We have received the fourth edition of a booklet bearing the foregoing title, and published by JAMES KYNOCH, of Brighton. The contents follow no sort of order. First comes a list, arranged systematically, under the Natural Orders, with popular names added, but no localities. This is followed by a list of additions since 1887. Then a list of certain plants, &c., by the late Rev. T. SALWERY, with habitats, and including cryptogams of all classes, except Fungi. It was first published in 1863. Apart from repetitions in separate lists, misprints are numerous.

MIDLAND AGRICULTURAL AND DAIRY COLLEGE. The annual meeting of the College will be held on Monday, the 31st inst., at 3.15 p.m., when the report on the year's work will be presented.

ROCKERY AT DERWENT HILL GARDENS.—A large rockery has just been completed at Derwent Hill, Keswick, the residence of Mr. ROBERT SLACK. The work of construction has occupied 18 months, and, in order to mark its completion, Mr. SLACK entertained the operators at dinner. The new rock-garden was designed and constructed by Mr. T. R. HAYES, nurseryman, Keswick.

ACCLIMATISATION EXPERIMENTS.—*Publication* No. 207 of the U.S. Department of Agriculture contains lists of seeds and plants imported into the United States from January to March, 1910, the purpose of the importations being mainly to secure hardy, or otherwise serviceable, plants for acclimatisation or breeding purposes. The list, which is a testimony to the activity of American plant-collectors, contains, among specially noteworthy importations, the following:—Seeds of fruit trees from Kashmir, namely, *Prunus cerasus*, *Amygdalus persica*, *Prunus armeniaca*, *Pyrus communis*, *Malus sylvestris*, drought-resistant Pears (*Pyrus* spp.) from China, where they are cultivated among the hills of S.W. Manchuria as far north as 43°44'; the fruits are hard, late, and keep all the winter. Tubers of Potatoes (*Solanum* spp.) from Chili, wild Clovers from the mountains of Turkey, and dark-purple seedless Grapes from Wisley. In addition to the plants already named, there is a new form of *Malus baccata* from Siberia, which is in use in Russia (St. Petersburg), for hybridising with *M. prunifolia*, in order to obtain a hardier race of Apples.

NOTICES OF BOOKS.

RHODODENDRONS.*

ONE of the later volumes in the Present-Day Gardening Series is Mr. Watson's book on *Rhododendrons and Azaleas*, which contains an interesting preface by Sir Frederick Moore, M.A. This volume is not only very nicely illustrated, but it is a correct record of what has been done with Rhododendrons in gardens. No one is better situated to write a book on this subject than the Curator of Kew, for these gardens possess a large collection of both species and hybrids. Horticulturists may think that nature has placed no finality on the ability and ingenuity of man to improve plant life by hybridisation and good culture, therefore, while Mr. Watson very pleasantly and correctly tells us what men like Waterer, Veitch, Mangles, and others have done, his book should incite us to still further efforts.

Breeders should aim at a prolongation of the flowering season of Rhododendrons by the hybridisation of the early-flowering Himalayan species, which flower in March and April. The chief difficulty with which we have here to deal is the liability of the blooms to be cut off by frost. But there is this to be said, the undeveloped buds are not injured by slight frosts, and the leaf growth is usually so much later as to escape injury altogether, so that the mischief is almost entirely limited to the trusses of bloom which have actually expanded. Not only so, but it is little short of marvellous to witness how short a time is required by the Rhododendron to come up again, as it were, to the scratch with a fresh set of trusses which have been waiting for a thaw. I do not wish to be tied down to any sort of definition of that much abused word "hardy," it is a term capable of such interpretations and vagaries as make me cordially dislike it. It is so comparative and so open to misinterpretation that it ought never to be applied without qualification.

I have known the Oak, Ash, Bracken Fern, and common Bramble, injured by frost if caught when the sap is up, yet they are amongst the commonest of our so-called hardy native plants. My experience of some Himalayan Rhododendrons is that they are every bit as hardy as the Oak.

It would be interesting if Mr. Watson would tell us more about *R. Wightii*. Some 30 years ago Sir George King, of Calcutta, sent me seeds of it, which in due time gave results of the most disappointing kind. When the plant bloomed with me it had a washy pink or white, small campanulate truss of the size and shape of *R. campylocarpum*, with the characteristic black honey spots in the base of the corolla, but nothing else peculiar in bloom or in foliage. Complaints of the same disappointment reached me from Ireland, Cornwall, Surrey, and other counties. It was evident that my plant was not the *R. Wightii* of Sir Joseph Hooker's *Rhododendrons of the Sikkim Himalayas*, and I am not aware that the true *R. Wightii* has yet been

named *R. Harrisii* by Mr. Watson, and I saw it in splendid condition in April this year in Mr. Graham Vivian's garden at Clyne. It is a really fine thing, of the deepest blood-red colour. About 30 years ago the late Mr. J. H. Mangles and his brother were at Penllergaer, and we amused ourselves by crossing some Rhododendrons, such as *R. Thomsonii*, *R. Fortunei*, *R. Aucklandii* (*Griffithianum*), and *R. ochraceum*, now, I believe, known as *arboreum album*.

I had some of my plants of the hardy sorts from Van Houtte, and among them was one of which I am very fond. It was then catalogued as *R. Massangei*, but was afterwards called *R. campanulatum Fleur du Roi*.

On another important point Mr. Watson's observations, will be very welcome. Whence comes the colour of the golden-coloured *Azalea* Anthony Koster? It is all very well to say *A. sinensis* and *A. mollis* are synonymous. I have any quantity of *mollis*, and I have crossed it with *pontica* and other species, whereas the plants of *A. sinensis* sent me by Van Houtte



FIG. 35.—*POLYPODIUM RIGIDULUM* VAS. VIDGENII IN BRISBANE BOTANIC GARDENS.

(See also Supplementary Illustration.)

grown in an English garden. The late J. H. Mangles was staying with me in South Wales some 30 years ago, and he told me he had heard of a plant of it at Vienna. He went to try and secure it, but all in vain, as it was not *R. Wightii*.

Sir Joseph Hooker's figure of this species is not exaggerated, and we may still hope to have some day the true species in our gardens. Possibly it will be found to be a native of a lower elevation in the Himalayas than we had supposed, and in consequence it may not be as hardy as we have been led to expect. Sir Joseph Hooker has told me that *R. arboreum*, the common Rhododendron of India, from Ceylon through the Neigherries, Simla, Burma, the Himalaya, &c., is represented by white, pink, and red forms, but at lower elevations than we can expect hardness. My pink and white *arboreums* have been very successful, but it is only now that I am beginning to enjoy the beautiful scarlet *arboreums* which I have long coveted.

Many years ago that very able and expert gardener, Mr. James Harris, when gardener to the late Lord Swansea, raised a seedling between a red *R. arboreum* and *R. barbatum*, which was

died, not once nor twice, until I placed them under glass, and then I obtained pollen with which I crossed *A. mollis*. From this cross I have got a golden *Azalea*, a little better than *A. mollis*, but not quite so good as Anthony Koster. The question I wish to ask Mr. Watson is does not a finer form come from a warmer part of China than the ordinary type of *A. mollis*? My experience as related may have been unhappy, but it appears to support the contention of some that two quite distinct plants have been named *mollis* and *sinensis* respectively.

The history of the Rhododendron in gardens is an interesting one. Mr. Watson has given us a great deal of it in his book, but I think much remains to be told, particularly with respect to the magnificent race of hardy plants that we know as Waterer's Rhododendrons. There are, however, other matters beside the breeding of these plants to be dealt with in a small popular book on so large and varied a genus of garden plants, and I doubt if the whole of them could have been more admirably treated upon than in the charming volume under notice. *John T. D. Buxton, Penllergaer, Swansea.*

* *Rhododendrons and Azaleas*, by William Watson, A.L.S. Present-day Gardening Series, edited by R. Hooper Pearson, (T. C. and E. C. Jack.) Price 1s. 6d.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

SELF-POLLINATING APPLES.—If all readers of this paper who have evidence as to the self-fertile qualities of certain varieties of Apples and the non self-pollinative capability of others would give it in these columns, growers of fruit would be placed in possession of valuable information. Fruit-tree nurserymen and growers on a large scale can hardly fail to have such evidence in their plantations, for they usually grow a single variety in a large block. On p. 2 I gave evidence to show that Royal Jubilee is self-pollinative; that Lord Grosvenor is self-pollinative or at the least safe to set fruit if as far as 216 feet from any other variety that blossoms at about the same time; and that Cox's Orange Pippin, declared to be not self-fertile, can safely be planted in blocks of eight rows 12 feet apart. But I can "go one better" than this in reference to Cox's Orange Pippin, as I have a block of 12 rows now in the third year from the planting, and there are no Apples beyond one side of the block. Yet the trees on the outside, 144 feet from any other variety, set

NARCISSUS FLY.—May I point out to your recent correspondents on the Narcissus fly (Meron equestris) that this is a notifiable pest under the Destructive Insects and Pests Order of 1910, and that if they fail to report the presence of the pest in their bulbs, they are contravening an Order of the Board of Agriculture, which renders themselves liable to a fine of £10? G. C. G.

FORCING VINES.—I am extremely obliged to those writers who have taken up this matter so keenly on both sides. Writers of the weekly Calendars never ought to be thin-skinned, as it is very easy for anyone so inclined to criticise the directions given. There are so many ways of dealing with the various subjects in horticulture that it is quite possible to obtain good results by entirely different methods of treatment. My remarks have been based entirely on practical experience. Mr. Jefferies is of opinion that 99 per cent. of present-day gardeners syringe their vines at starting time, simply because they were taught to do so in their early days. This does not say much for the intelligence of the head gardener; I have a far better opinion of him than that. If we moved no faster than this, surely as a profession we should be a long way behind in most matters pertaining to our

in a hoolay where Charlock is a pest on far too many farms." They no doubt fight shy of this annual spraying for the reasons I have already stated. It is 50 years since I first ploughed, harrowed, and reaped with the sickle. I wrote from practical experience. W. P. R. From How, Holguell.

THE "READY BARTLE" POOR CHILDREN'S FUND.—I appeal to members of the various horticultural societies to assist me in my efforts on behalf of the poor and fatherless children of outer London. The objects of this fund are to provide a convalescent home at the seaside for those who have been ill and a holiday home in the country among the wild flowers; to provide also boots for the barefooted and Christmas-tree parties for the slum children. Contributions, however small, may be sent to the undersigned or to my colleague, C. H. Bartle, 29, Turney Road, Dulwich, S.E. R. Ready, F.R.H.S., 18, Ross Road, Wallington.

PLAGIANTHUS LYALLII.—The excellent drawing of this plant in last week's issue, although giving a perfect idea of the flower, through being sketched in an upright position and from the under side, does not afford quite a correct picture of how the flowers appear on the plant. The flowers, although produced from the axils of the leaves, appear on the shrub as though growing from the under side of the branches, and in this way many of them are hidden by the foliage. The best way, therefore, to plant this shrub is to have it on an eminence, so that it may be viewed from below. Thus looking up into the shrub, so many more of its beautiful flowers are brought into view. There appear to be at least two forms in cultivation, one having greener and more glabrous leaves. Although the plant may be considered quite hardy, a sunny position should be given it, so as to get a thorough ripening of the growth. It does equally well as a bush, short standard, or as a wall plant, and it is worthy of extended cultivation. T. H. C.



FIG. 36.—A CROP OF MELONS AT BALLYFIN HOUSE.

MELONS AT BALLYFIN.

THE Melons shown in fig. 36 were growing in one of the old pine-stoves at Ballyfin, Queen's County, the residence of Sir Algernon Coote, Bart. The varieties were Hero of Lockinge and Triumph, and the fruits were in various stages of ripening. Mr. Thornton, who kindly sent the photograph, informs us that the largest fruit weighed nearly 7 lbs. Other fruits, including Grapes, are also cultivated exceptionally well at Ballyfin. The vine borders were re-made by the gardener, Mr. McLaren, some 14 years ago, since which time the vines have produced excellent crops.

SCOTLAND.

QUEEN MARY AND THE SCOTTISH HORTICULTURAL ASSOCIATION.

ON the occasion of the recent visit of their Majesties the King and Queen to Edinburgh, Queen Mary was graciously pleased to accept a basket of Roses offered by the president and council of the Scottish Horticultural Association. Her Majesty commanded that a letter of thanks be sent to the president and council of the Association, and the letter forwarded to the secretary, Mr. A. D. Richardson, was as follows:—"July 20, 1911. Dear Sir,—I have handed to the Queen the beautiful basket of Scotch-grown Roses which the president and you brought to the Palace this morning. Her Majesty is greatly pleased with the flowers, and commands me to write at once and ask you to be good enough to convey to the president and council of the Scottish Horticultural Association her deep sense of appreciation of, and grateful thanks for, their kind and charming gift. E. W. Hamilton."

The Roses were grown in Messrs. Dicksons' Nurseries, Craigmillar.

as many Apples as I allowed them to bear—only a few near the trunks of trees close to Mr. Gladstone on the other side. If this does not prove that Cox's Orange Pippin is self-pollinative, it proves at least that the injunction to plant only two rows of one variety in one place may be safely disregarded. Other varieties which do not show any lack of fruiting through being planted in blocks 60 feet wide (five rows) are Lane's Prince Albert, Domino, Early Julian, Duchess of Oldenberg, and Stirling Castle. Among Plums I have eight rows each of Rivers's Early Prolific, Victoria, Pond's Seedling, and six of Monarch and Czar, the trees in which have fruited as well in the middles of their respective blocks as on the outside. A Southern Grower.

SAVIA SCLEARIA (see page 27).—I first noticed this beautiful plant several years ago in a cottage garden at a small village named Dulcote, just outside the city of Wells in Somersetshire. It is a biennial species and seeds rather freely. W. J. Wood, *Silwood Mills, Frome, Somerset*. [An illustration of this species, flowering in a bed at the Cambridge Botanic Gardens, was printed in *Gard. Chron.*, October 10, 1908, p. 268.—Eus.]

calling. It is quite true that many of the big forest trees, including Beeches, die from the top, downwards. This, of course, is owing to the fact that there is not sufficient vitality to force up the sap to the extreme top, but the conditions are different both in a young tree and a vine. E. Jackson.

THE DESTRUCTION OF CHARLOCK.—I was pleased to be informed by Mr. Molyneux (see p. 26) that he can get the upper hand of this weed by spraying once or twice in the season. By carrying out my suggestions there would be no need for this annual labour and expense, and by sowing any of the green crops named its destruction would be a source of profit, and the roots left would be of some manurial value in the soil. When I wrote of bare fallowing I had in my mind the worthless grain crops of recent years, and I thought, and think so still, that it would be more economical to miss a crop and get rid of the weed. Mr. Molyneux is surely aware that farm crops are sown in spring, and that fallowing is an excellent preparation for grain and root crops. It appears that Mr. Molyneux's apparent success has not inspired his neighbours to follow his example, for he tells us that "he lives



THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

CYPRIPEDIUM.—Though the members of this genus requiring a warm treatment are not so extensively cultivated as the cooler-growing species nevertheless the late spring and early summer-flowering *Cypripediums* include very attractive plants. The species *C. Stoei*, *C. Rothschildianum*, *C. Sanderianum*, *C. Curtisii*, *C. superbiens*, also the hybrids *C. Sanderiano-Curtisii*, *C. Mrs. Reginald Young*, *C. Sanderiano-superbiens*, *C. Massianum*, *C. callos.* *Rothschildianum*, *C. Transvaal*, *C. A. de Lairese*, *C. Shillanum*, and *C. Tansoni* all require stove heat and a liberal treatment generally. But *C. Lawrenceianum* and its variety *Hyeatum*, *C. barbatum*, *C. callosum* and its variety *Sanderae*, with the host of hybrids derived from these, grow better in an intermediate temperature. Many of these Orchids are propagated easily, and may be divided again and again provided care be taken in the operation. The present is the most suitable time to undertake a general overhauling of the plants, and with a view to the providing of new rooting material to specimens that need it. Cocks, arranged perfectly, should occupy about two-thirds of the depth of the pots or pans, as efficient drainage is essential. Employ a porous compost, consisting of fibrous peat one-half, turfy loam one-quarter, and Sphagnum-moss one-quarter, with a liberal addition of coarse silver sand. Water may be given directly after the repotting; in fact, it is required in almost as copious supplies at that stage as at the season of active growth, owing to the new compost drying quickly. The plants should occupy a position where they can be shaded from strong sunshine, and there must be no lack of moisture at the root or in the atmosphere. Light sprayings overhead with soft, tepid water when the weather is favourable are very beneficial, especially to those kinds that have tessellated foliage. Insects seldom attack *Cypripediums* when the plants are thriving in plenty of atmospheric moisture, although they soon become troublesome in the case of weakly, half-starved plants having shrivelled leaves and growing in dry, draughty houses.

SUCCULENT CYPRIPEDIUMS.—The little group of this section composed of *C. bellatulum*, *C. Godfreyae*, *C. leucochilum*, *C. concolor*, *C. niveum*, &c., are the most difficult to cultivate and retain in a healthy condition. In winter, more especially in the neighbourhood of large cities, where fogs are prevalent, they show a disposition to decay in the centre of the growths, and at the base of the leaves. The greatest care must, therefore, be exercised in affording water, which should not be allowed to remain in the growing points, and, whilst a certain amount of root moisture is always required, the plants must be kept somewhat drier in winter than most *Cypripediums*. The plants succeed best when grown close up to the roof-glass, where they are free from drip, and a warm, moist atmosphere is necessary to their well-being. During their growing season the supply of water at the roots should be ample, but watering overhead is not to be recommended, nor should water be allowed to collect about the bases of the plants. This danger is obviated by elevating the plants a little in the pots, keeping the centre of the compost higher than the sides: in the case of newly-imported plants this is always a wise practice. The most suitable time for repotting is soon after the plants have passed out of flowering, but disturbance at the roots should not take place unless the condition of the compost and drainage make this necessary. If the surface material be sour, pick out as much as possible without injury to the roots, and replace it with a compost similar to that advised above, adding some finely-broken brick, crock, or nodules of limestone. Some very fine hybrids have been raised in this section, some of which grow and flower freely, whilst others are most difficult to cultivate and retain in a satisfactory condition.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of HALBINGHAM, K.T., Tynningham, East Lothian.

HEDGES.—The present is a good time to clip evergreen hedges. They will not make much fresh growth before winter, therefore they will present a trimmed appearance until next spring; thus it is possible to do with but the one clipping in the year. Specimen trees of Yew or of Conifers, whether of pyramidal or other shape, may also be trimmed at the present time. The shears should have thin blades with very sharp edges in order to ensure clean cuts. The trimming of hedges and trees can be carried out most conveniently in dull weather and when the verdure is slightly moist. Any of the commoner shrubs may be examined, and if any pruning is needed this operation can be carried out with the knife or one of the handy pruning instruments available for the purpose. If shrubs are pruned neatly and regularly with care, they will scarcely show that they have been trimmed at all, but this effect cannot be secured unless the pruning is carried out by experienced workmen.

PHLOX.—Plants of herbaceous Phlox have begun to flower much earlier than usual, and in gardens that do not contain the latest flowering sorts the blooming season will be likely to be a short one. The earliest variety to bloom is *Eclairer*, followed by *Soleil*, and then by *Le Mahdi* and others. There are so many beautiful Phloxes that the number is bewildering, and it is difficult to make a selection from the flowers exhibited at the shows. For instance, assuming that *Soleil* and *Sheriff Ivory* and *Le Mahdi* and *Iris* were staged in juxtaposition, *Soleil* and *Le Mahdi* would almost certainly be passed over, and the others chosen, and so with *Eugène Danzanvilliers* and *Jean Best*, but though these varieties resemble each other in some characteristics, there are differences in the time of flowering sufficient to make it worth while to cultivate most or all of them. Some varieties, though they appear fine at exhibitions, do not associate happily with other flowers, and other varieties, again, have so poor a habit of growth, for instance, *Coquilicot*, that they are seldom cultivated with ease or satisfaction. Phloxes soon feel the effect of drought, and unless their roots are watered thoroughly from time to time, the flowers are certain to fall.

ANEMONE JAPONICA.—Varieties of the Japanese *Anemone* have likewise commenced to bloom early. There are far too many varieties of this fine plant, especially those with so-called double flowers. One of the best is the old *Honoree Jobert*, which has small white flowers, and *Whirlwind*, also white and excellent for late blooming. Of the pink forms the finest I have had is "*Profusion*," which is much like the better-known *Queen Charlotte*, but more floriferous, and, altogether, a better border plant. The double flowers as a rule are disappointing, the colours of the more recent varieties being far from attractive.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

ERANTHEMUM PULCHELLUM.—Of all blue-flowering plants blooming during the winter season, this is one of the best, grown either as medium bushes or as quite dwarf specimens. If a stock be raised now from cuttings, dwarf stocky plants will be obtained that may, after one shift, be flowered in 4½-inch pots. Small flowering plants of *Eranthemus* are extremely useful in the winter for floral decorations.

CROSSANDRA UNDOLEAFOLIA.—This plant is of the same Order (*Acanthaceae*) as *Apheandra*. Seedlings raised in the spring are making good specimens. The plants will flower this autumn and again early next season, when seed may be obtained for another sowing.

FERNS FOR CUTTING.—Where there is any special demand for fronds of such kinds as *Adiantum cuneatum*, the plants should now be encouraged to make a hard, enduring growth. Where room is scarce in the glasshouses a cold frame will answer their requirements well at this season. The greenhouse will suit them better now than a stove or other moist, humid house.

Shade is not, as a rule, necessary, and should not be employed except in excessively hot weather. Any plants of this Fern from which the fronds have been cut freely should receive a partial rest for a time. After the lapse of a few weeks it will be possible, by a variation in the treatment, to secure a fresh growth. Plants in relatively small pots with an abundance of roots will be found better for cutting purposes than larger examples. In larger pots the fronds may be finer, but they are not so enduring after they are cut. The fronds should be immersed in a tank of water for a time before using them for decorations.

WINTER-FLOWERING BEGONIAS.—Give every possible attention to *Begonias* of the *Gloire de Lorraine* type. There is still time to root cuttings for procuring a batch of plants to flower in 3-inch pots. Those now established in receptacles of that size should be potted into 4½-inch pots, and those already in 4½-inch pots into others a size larger, which are the largest pots needed for plants rooted this season. Old plants, however, may be grown as specimens in 8½-inch pots, but larger pots than these are not needed unless in exceptional cases. Use a light soil, and pot firmly. This *Begonia* makes an excellent basket-plant, and it is a suitable time to plant in baskets those intended for flowering next winter, bearing in mind that a medium-sized basket not overcrowded is far better than a larger receptacle containing several plants. A rusty appearance of the under-surfaces of the leaves is an indication of the presence of a member of the spider family (*Arachnide*), more minute than the red spider. Drapping the foliage in a weak solution of Tobacco juice and rinsing afterwards in clear water will destroy this pest. *Begonias* of the winter-flowering, tuberous-rooted section should be given every encouragement at this stage, but fire-heat must not be employed whilst hot weather continues. In most respects their culture should be the same as advised for *B. Gloire de Lorraine*. *Begonias* of the "*semperflorens*" type should soon receive their final shift, and afterwards the stronger shoots should be pinched to induce a bushy growth. These *Begonias* will succeed in an ordinary greenhouse, or a cool pit, but they must be shaded from excessive sunlight. *Begonias* like *B. nitida* and *B. odorata* that are often planted out and trained to trellises should have the old, hardened wood removed and the younger shoots trained in its place.

FRUITS UNDER GLASS.

By E. BEECHETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

LATE VINERIES.—Now that the berries are swelling freely, every encouragement should be given the vines to produce large bunches and fine berries. Much can be done in this respect by careful attention to ventilation and damping. In the afternoon, when closing the house, the surfaces of the border and paths should be freely damped, occasionally employing manure water in place of clear water, which will tend to keep the foliage free from the attack of red spider; should this pest be troublesome, the affected leaves must be sponged. Later in the day the top ventilators of the house should be again opened, allowing them to remain open all night; this is preferable at this season to opening them early in the morning, as it decreases the danger of the leaves scalding. If the vines are in a healthy condition and carrying fair crops of fruit, and the borders are not waterlogged, a stimulant may be applied once a fortnight, varying the kind from time to time and washing it well into the soil. Regulate and stop the laterals before these become too hard. If they are removed early it will do much towards providing a better circulation of air near the roof of the house. Where vines have their roots also in outside borders these latter must be watered with the same care as indoor borders. Though in many places it is considered bad practice to cultivate a crop on outdoor vine borders a dwarf growth such as annuals does much towards conserving the moisture in the ground, and certainly improves the appearance of the borders; failing the annuals, a light mulch is necessary.

PLUMS IN POTS.—Trees carrying crops of ripening Plums will need less water than

formerly, and only clear water must be used. As the fruit is taken from them the trees should be removed out-of-doors, and the pots partly plunged. Continue to keep the foliage in a healthy condition by thorough syringings and stop the growths as necessary, pinching those which are not required for extension in order that they may form fruiting buds for next season. Do not neglect the watering of the roots; any trees that have carried good crops may be given occasional applications of manure. With careful attention, Plums may be allowed to hang upon the trees for some time after they become ripe, and their flavour will improve.

PEARS IN POTS.—Many of these will now be swelling their fruits freely, and it will help them if stimulants are afforded the roots. Pear trees are gross feeders, and while growing require plenty of water; the space for supplying water may be increased by placing a ring of turfy loam above the top of the pot. Support the fruits firmly, especially those varieties that are expected to attain a good size. Continue to syringe the trees freely with soft water. If a warm position can be chosen for them, the trees can be removed out-of-doors, as recommended for Apples, when the colouring of the fruits will be encouraged. Plunge the pots up to the rims, as besides minimising the labour attached to watering and making the plants thoroughly secure against wind, the roots will thus be kept cooler.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Kew Gardens, London.

MUSHROOMS.—Preparation should be made now for the autumn supply of mushrooms. Let the house be thoroughly cleansed and the walls washed with hot lime; a little sulphur may also be burned in the house to destroy any insect pests which the brush may fail to reach. Manure should be collected daily and placed in a dry, open shed, where it may be turned frequently preparatory to making the bed, which may be done about the middle of August; but no great quantity of manure should be placed together, or it will become sour and unfit for use. Mushrooms may be expected from this bed about the middle of October. Mushroom-beds in cool sheds should be examined carefully, and a gentle watering afforded if the surface is at all dry. Remove the layer of straw covering the bed before applying the water, and replace it the following morning, to keep the weeds from unduly drying the surface.

ASPARAGUS.—Seedling plants of Asparagus should be regulated in the rows, thinning them to a few inches apart. When of sufficient size, they should be afforded support by stretching a wire, to which the young plants may be tied, along each row. The same remark applies to all Asparagus in exposed positions: it is an easy matter to place a wire along each row and to tie the plants before they are injured by wind. If dry weather continues, the beds should be given a dressing of salt, and watered freely with clear water. Keep the soil free from weeds by a frequent use of the Dutch hoe, which, if used carefully, will do no harm at this season.

POTATOS.—The early Potatoes should be lifted as soon as the haulm has withered, and the ground will be available for some winter crop. Directly the tubers are dry, they should be stored away in some dark place, as strong light soon spoils their best cooking qualities. If seed tubers are required for next season's planting, the tubers selected for the purpose should be exposed to the light for a short time to harden their skins, before they are placed in the store-room, which should be freely ventilated until the advent of frost.

TURNIPS.—A sowing of Turnips for furnishing a winter supply should be made without delay. Ground recently occupied by early Peas will be suitable; it will only require breaking up 2 or 3 inches deep with the point of a digging fork, and afterwards raked as finely as possible with a wooden rake. Sow the seeds in drills drawn at 15 inches apart. When the seedlings are well above the ground they should be thinned to 9 inches apart, and frequent dressings of fine wood-ashes applied. The Turnip is a moisture-loving plant, and in dry weather copious

applications of water are needed to encourage a quick growth. A sowing of Turnips may be made weekly during the next three weeks, the last to furnish roots for remaining in the ground throughout the winter. Red Globe, Green Top Stone, Golden Ball, and Chirk Castle may be sown to come into use in the order named.

MINT.—Plants of Mint which have become overgrown should be cut close to the ground and a thorough soaking of water applied afterwards to encourage the development of new shoots. By this method a supply of young, green Mint should be available until the plants are cut down by frost, when roots placed in a gentle heat about the middle of October will be furnished with suitable shoots.

BASIL.—Seeds of this herb should be sown in heat about the middle of August to produce a supply of green leaves throughout the winter months. A temperature of 65° is necessary to grow this tender herb successfully.

THE HARDY FRUIT GARDEN.

By W. HERLEY WARREN, Asst. Clinton Gardens, Buckinghamshire.

WATERING FRUIT TREES.—The watering of fruit tree borders is a matter requiring much discretion. Sometimes, even when the drainage is good, the soil will become overcharged with moisture, whilst, on the other hand, the evil effects resulting from drought are almost or quite as great as from excessive wet. Especially in the case of Peaches, Nectarines, and Apricots must these extremes be carefully guarded against, for, where the border is allowed to become too dry, the buds will begin to fall the following spring upon the first flow of the sap, and this will ruin the crop for the season. Again, a deficiency of water at any time soon brings the fruit to the ground, even in its more advanced state previous to ripening, and, moreover, dry conditions favour the spread of red spider. The opposite conditions—a cold, wet soil—will certainly cause mildew to appear. When water is necessary, it must be applied copiously; merely wetting the surface is worse than useless, for when once the top layer of soil only is wetted, it cannot be determined what quantity of water has been afforded. Water should never be withheld until the trees show signs of distress, for by that time the evil is done. The advantages resulting from a proper and timely attention to these matters will soon be apparent in a general, healthful condition of the trees. The quantity of water to be applied at any one time, whether to trees growing in prepared borders or the natural soil, is such as will sink down to the lower roots of the trees. The amount will, of course, depend on circumstances. If the soil is stiff and cold, or, if the soil is cold, wet sub-soil, less water is needed than where the ground is of a lighter, drier character. The periods of watering must be regulated according to the season. If the weather has been wet previous to the opening of the blossom in the spring, no water need be given until there are indications of the soil becoming dry, upon which a thorough and complete soaking should be given. On no account should the soil be allowed to become dry at the flowering stage, or the greater part of the bloom will drop. Trees growing on a south aspect require more water than those in other positions; but the amount must be regulated according to the season and the condition of the soil. Many growers do not water stone fruits, particularly Peaches, Nectarines, and Apricots, during the stoning period, but do so as soon as that stage is passed. In that case care must be taken to ensure the borders being in a moist condition before stoning commences. Applications of manure water promote a healthy growth in fruit trees, and this form of stimulant is preferable to ordinary manure. Espalier trees in the open garden do not require such close attention in watering and feeding as wall trees, because their roots extend on every side, the rain and dew fall more directly upon them, they derive more benefit from the free circulation of air, and the soil about them does not dry so quickly as that of wall borders, where absorption and evaporation of moisture is very great, owing to the absorptive powers of the masonry of the walls, and the reflected heat from the latter.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JULY 18. Present: Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Sir J. T. D. Llewellyn, Dr. A. B. Rendle, Dr. A. Voelcker, Messrs. J. T. Bennett-Poe, J. Fraser, W. Fawcett, E. M. Holmes, G. Wilson, R. H. Pearson, A. W. Sutton, A. W. Hill, and F. J. Chittenden (hon. sec.).

Botanical Certificates.—*Cataseum reflexum*, a new species, from Peru, approaching *Cynoches* in some of its characters, was sent from Glasnevin by Sir FRED. MOORE. On the motion of Mr. O'BRIEN, seconded by Mr. WILSON, a Botanical Certificate was unanimously recommended to this plant. A new *Dendrobium*, from Java, was exhibited by Sir TAEVOR LAWRENCE, Bart. It had been described under the name of *D. Annæ*, J. J. Smith, and is nearly allied to *D. mutabile*, which was shown to compare with it, but about double the size. On the motion of Mr. O'BRIEN, seconded by Mr. BENNETT-POE, a Botanical Certificate was recommended.

Scold on grass. Mr. E. M. HOLMES showed a white scale insect attacking grass from Charing. This scale (*Uropeltis festuæ*) appears to be common this season in places, and proves destructive to the grasses it attacks, causing them to become brown.

Sweet Pea roots. Mr. E. M. HOLMES also showed dying roots of Sweet Pea. These, as is so frequently the case this year, were attacked by the fungus *Thielavia basicola*. The foliage of attacked plants turns yellow in patches, and finally dies, while the stem is often streaked with yellowish-brown. The fungus also attacks the culinary Pea, and produces similar symptoms. In America and Italy it has proved extremely destructive to Tobacco, and nothing short of sterilisation of the soil has proved an effective check to its ravages.

Papaver orientale with cleistogamous flowers. —Mr. J. FRASER showed *Papaver orientale* with cleistogamous flowers. The plants had produced similar flowers last year. The petals were linear oblong, not imbricate, and only as long as the sepals. The pollen was abundant, and both stamens and pistil appeared normal.

Poppy in Shirley Poppy. —Mr. FRASER also showed flowers of Shirley Poppy having the usual yellow stamens, but with two of the petals red and the two alternate ones white.

Matricaria suaveolens. —Mr. BOWLES showed specimens of *Matricaria suaveolens* (= *M. discoides*), an introduced plant which now grows wild in many English counties, and as far north as Aberdeen. The specimens were collected in the neighbourhood of Epping.

Crown-gall. —Mr. H. T. GESSON (Canada) sent specimens of crown-gall—large swellings on the roots or near the collar of trees. It has been shown by Dr. ERWIN SMITH to be due to the attack of *Bacillus tumefaciens*, though others, apparently without recourse to inoculation experiments, have ascribed it to the attack of a myxomycete. Numerous plants of widely distinct families are attacked by the bacillus but it does not yet seem to be clearly established that it is very harmful to the tree attacked.

Fasciated Rose. —Mr. PASHAM, of Bessing, sent a fasciated Rose stem over 1 inch in diameter, and bearing at its apex about nine more or less developed buds.

HORTICULTURAL CLUB.

VISIT TO FRIAR PARK.

JULY 21.—The annual outing of the Horticultural Club took place on the above date, when a party of about 75 members and friends, including a number of ladies, visited Friar Park, at the invitation of Sir Frank Crisp, vice-president of the Club. The party travelled in saloon carriages from Paddington to Reading, where a steam launch provided by Sir Frank Crisp was found waiting at Caversham Lock to convey the visitors to Henley. At Henley they were met by Sir Frank and Lady Crisp, and luncheon was taken in Sir Frank's boathouse,

the room and tables being prettily decorated with pink roses.

After luncheon Sir Frank Crisp conducted the party over the Friar Park Gardens, including the magnificent rockery, planted with such a wonderful collection of Alpine species and presenting Alpine views of great breadth and height, culminating in a distant view of the Matterhorn. In the Rose garden the display of pink Ramblers was extraordinarily good, and amongst other fine features was the collection of clipped trees, many of them exhibiting a rich golden colour. The visitors were then conducted through the underground caves and caverns with their population of gnomes, bats and owls, into the recesses of the ice cave beneath the glaciers of the Matterhorn, and then along the subterranean streams. The new Japanese garden was also inspected, and the conservatories containing many interesting botanical plants. The beautiful dwelling-house itself, with its riddles and puzzles deftly wrought into its sculptured walls also evoked both admiration and amusement.

Following the inspection of the gardens the visitors were conveyed back to the boathouse, where they re-embarked in the launch for a further trip to Marlow. After partaking of tea at the Castle Hotel, Marlow, a move was made to the railway station, where saloon carriages were again waiting to convey the party to Paddington. To mark the occasion of the visit, a rhymed and humorous description of Friar Park had been written by Mr. C. T. Drury and printed by Sir Frank Crisp for distribution.

The outing was a most enjoyable one, and the feelings of the visitors were well voiced by Mr. Harry Veitch, immediately after luncheon, when he proposed a vote of thanks to Sir Frank and Lady Crisp.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JULY 6. *Committee present:* Rev. J. Crombleholme (Chairman), R. Ashworth, H. Thorp, P. Weathers, D. McLeod, W. Holmes, Z. A. Ward, C. Parker, and H. Arthur (secretary).

W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse), exhibited a small collection of Miltonias. The variety of *M. vexillaria* named Maggie received an Award of Merit.

A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), exhibited a distinct pale form of *Cattleya Mossie* var. *Blueana*.

Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), exhibited a fine form of *Odontocidus* × *Charlesworthii*, which has been previously certificated, and *Odontoglossum* × *Rossiana*.

Mr. J. STOTT, Radcliffe, was awarded a First-class Certificate for a good variety of *Stanhopea tigrina*.

Messrs. SANDER & SONS, St. Albans, staged a small group of plants, principally *Cattleya* and *Laelio-Cattleya* hybrids of good quality.

Mr. J. BIRCHENALL, Alderley Edge, exhibited a fine form of *Cattleya Mendelii* with a richly-coloured lip, also a few interesting botanical specimens. P. W.

WESTERN ROSE.

JULY 22.—The annual exhibition of this Scottish Rose society was held at Gourrock on this date. The show attracted some of the best Rose growers in Great Britain.

In the eight open classes Mr. HUGH DICKSON, Belfast, won five, Messrs. ALEX. DICKSON & SONS, Newtownards, two, and Mr. D. ROBERTSON & Co., Helensburgh, one 1st prize. Messrs. THOMAS SMITH & SON, Stranraer, won seven 3rd prizes in this division.

Mrs. RUSSELL Rosegarth, Newton Mearns, won the Challenge Cup offered for 18 blooms in the amateurs' classes, and this exhibitor also showed the best three vases of Roses, of distinct varieties, and a vase of Roses.

The "Dr. J. Campbell Hall" Challenge Cup offered for 12 blooms, distinct, was won by Mr. J. E. TURNER, Ardnam, Gourrock, who also excelled in the classes for 12 blooms in not fewer than eight varieties, and for six blooms of Hybrid Tea Roses.

Mr. PETER KENYON, South Bar, Troon, showed best in the classes for 12 blooms of Hybrid Tea varieties, and four distinct varieties, three blooms of each sort.

NORTH LONSDALE ROSE.

JULY 19.—The 28th exhibition of the above society was held on this date in conjunction with the National Rose Society, this being the third occasion the premier society has associated itself with the North Lonsdale show. The exhibition was held in Swarddale Park, Ulverston, in delightful weather. Some excellent Roses were forthcoming, whilst Sweet Peas were shown splendidly.

In the nurserymen's classes for Roses, a challenge cup and gold medal were offered for the best exhibit of 36 blooms, distinct. Messrs. A. DICKSON & SONS, Newtownards, were the successful exhibitors, their choicest blooms including specimens of Marie Baumann, Horace Vernet, Lyon Rose, Juliet, Ulrich Brunner, Earl of Warwick, Mrs. Miles Kennedy and Ulster; 2nd, KING'S ACRE NURSERY Co., Hereford.

In the class for 72 varieties, distinct, Messrs. ALEX. DICKSON & SONS again won the 1st prize, showing, amongst others, Jewel, Bertha Gaulis, Annie Wood, Bridesmaid, and Fisher Holmes; 2nd, Mr. HUGH DICKSON, Belfast.

Mr. G. PRINCE, Oxford, led in the class for 36 blooms, distinct, Mr. H. DREW, Longworth, and Mr. W. FERGUSON, Dunfermline, being 2nd and 3rd respectively.

In the class for six triplets, the winners were in this order: Mr. G. PRINCE and Mr. W. FERGUSON.

Mr. PRINCE also excelled in the class for 12 Tea or Noisette varieties, distinct; whilst for 12 distinct varieties, shown in five blooms of each sort, Mr. W. FERGUSON won the 1st prize and Messrs. A. DICKSON & SONS, the 2nd prize.

The best basket of Roses of seven exhibits was shown by Mr. J. MATTOCK, Oxford, who showed Lyon Rose beautifully.

A gold medal was awarded to George Dickson, a variety of rich crimson colour, shown by Messrs. A. DICKSON & SONS.

AMATEURS' CLASSES.

The principal class in this section was for 24 blooms, distinct, a challenge cup and gold medal being offered for the premier exhibit. Mr. W. J. CALVERT, Helen's Bay, was placed 1st with a charming collection that included fine blooms of Mildred Grant (awarded the silver medal offered for best H.T. variety), Frau Karl Druschki, Queen of Spain, Wm. Shean, and Mrs. Miles Kennedy. Mr. D. T. PALLETT, Earl's Colne, Essex, followed closely, whilst Mr. W. BOYES, Middleton-on-Wolds, was placed 3rd.

The best exhibit of 36 varieties, distinct, was shown by the Rev. J. H. PEMBERTON, Havering-atte-Bower, his bloom of Charles LeFebvre being especially fine in colour. The 2nd and 3rd prizes were awarded to Mr. H. V. MACHIN and Mr. CONWAY JONES respectively.

Dr. PALLETT secured the chief award in the class for eight distinct varieties, three blooms of each variety.

In the class for nine blooms of any Rose except a Tea or Noisette variety, Mr. H. V. MACHIN won the 1st prize with Frau Karl Druschki.

Mr. E. SPEIGHT, Market Harborough, was placed 1st for 18 varieties, distinct, his collection including the best H.P. variety in Horace Vernet. This exhibitor also excelled in the classes for six varieties, three blooms of each, and for six blooms of any Rose except a Tea or Noisette variety with richly-coloured blooms of Lyon Rose.

For 12 distinct varieties, Mr. W. HOFFMAN, Yorks., was placed 1st, whilst for nine varieties, Mr. T. B. RUSSELL, Manchester, led, Mr. E. GODFREY, Penrith, occupying a similar position for six distinct varieties.

The 1st prize in the class for six blooms of any Rose except a Tea or Noisette variety was won by Mr. M. WHITTLE with finely-coloured blooms of Lyon Rose.

Mr. CONWAY JONES led in the class for 12 distinct varieties of Tea or Noisette Roses, followed by Mr. W. BOYES. The best exhibit of nine varieties was shown by Dr. V. PALLETT; the best of six varieties by Mr. W. UPON; the best of six varieties, three blooms of each, by Mr. CONWAY JONES; the best of 12 varieties of decorative Roses by the Rev. J. H. PEMBERTON.

In the local section, the gold cup offered for 12 blooms, distinct, was won by Mr. R. L. GARNETT; whilst the Ulverston Council Cup was won by Miss G. WHALLEY.

SWEET PEAS.

The classes in this section were well filled, and in many cases the quality of the flowers was superb.

Mr. R. BOLTON, Carnforth, secured the challenge trophy offered for 24 bunches, distinct, with a fine collection, the variety Stirling Stent being especially good; 2nd, Mr. W. WRIGHT, Formby. Mr. J. BRYCE was placed 1st for six varieties, and Mr. E. M. ALLEN, Formby, for six new varieties.

Mr. R. BOLTON had the best vase of novelties not in commerce.

In the many classes where special prizes were offered, Mr. E. M. ALLEN, Mr. J. BRYCE, Mr. F. HARRISON, and Mr. T. PROCTOR won 1st prizes. Mr. C. V. TAYLOR secured the J. TAYLORS' special Challenge Cup, Mr. J. BLISS the Coronation Medal, and Mrs. E. HARRISON the District Council Challenge Bowl.

The North-Western Daily Mail offered prizes for one bunch of sweet Peas to consist of not more than 15 spikes in not more than three varieties. The bunches numbered 86, the 1st prize, which included a gold medal, was awarded to Mrs. ATKINSON, Croftlands, Ulverston.

LIVERPOOL HORTICULTURAL.

JULY 19.—The third Rose and Sweet Pea show of this society was held in the Corn Market, and proved the best of the three, the entries being more numerous than last year.

But the society has never been successful in selecting a date when Roses are at their best condition, and on this occasion there was a poor competition. F. R. DIXON-NUTTALL, Esq. (gr. J. Barker), was the most successful exhibitor of Roses, winning the 1st prizes in the classes for 18 and 12 varieties, his best blooms being the Lyon Rose, J. B. Clark and Mrs. W. J. Grant.

Mr. G. A. TURNER had the best exhibit of six distinct varieties.

Carnations and Picotees were a pretty feature of the show, those staged by Messrs. R. A. BROWN being very effective. This firm won the 1st prizes for six blooms, distinct, and for 12 blooms. Mr. G. A. TURNER also won a 1st prize in these classes.

In the classes for 20 distinct vases of Sweet Peas and two classes for 12 varieties of Sweet Peas Col. CORNWALLIS WEST (gr. Mr. Forder) had the premier collections, his best varieties being Maud Holmes, Marjorie Miller and Wells Spencer.

Miss NEWSHAM had the most tastefully-arranged table of Sweet Peas.

Mr. T. HENSHAW and Mr. A. F. SLOANE were placed 1st for 12 bunches, and six bunches respectively of hardy herbaceous flowers.

In the amateur classes the 1st prize-winners were Mr. H. S. HODGKINSON and Mr. L. THOMSON (for Roses), Mr. W. BINDLOSS, Mr. G. FAULKNER, and Mr. F. HINDLEY (for Sweet Peas), Mr. L. THOMSON and Mr. W. A. CRIPEN (for hardy flowers and Begonias), Mr. G. A. TURNER (for Carnations), and Mr. J. R. J. TURNER (for Pansies and Violas).

NON-COMPETITIVE EXHIBITS.

A gold medal was awarded The LIVERPOOL ORCHID & NURSERY Co. for a table of Orchids.

Silver Medals were awarded to Messrs. DICKSONS, Chester, for herbaceous flowers; Mr. W. ROWLAND, for Roses and Sweet Peas; Messrs. R. P. KER & SONS, for stove and greenhouse plants, fruit and vegetables; Messrs. BAKERS, Wolverhampton, for Roses; Messrs. BEES LTD., Liverpool, for Roses and hardy herbaceous flowers; Mr. PATTISON, Shrewsbury, for Violas; Messrs. W. CONWAY & SONS, Halifax, for hardy border flowers; Mr. ROBERT MANSON GATEACRE, for Roses; and Mr. HENRY MIDDLEHURST, for Sweet Peas.

ANCIENT SOCIETY YORK FLORISTS.

JULY 19.—The annual outing of the members and friends of the above society took place on this date, when a visit was made to Belvoir Castle, Grantham. A very enjoyable day was spent. It is suggested that next year's outing be to the Royal International Show at Chelsea in May.

DURHAM, NORTHUMBERLAND, AND NEWCASTLE-ON-TYNE.

JULY 19, 20, 21.—The annual show of the above society was held in the Recreation Ground, North Road, Newcastle-on-Tyne, on these dates in beautiful weather. This old and respected society appears to have allowed an innovation at this show, for members of the Press were excluded until after the judges had completed their work. This caused the reporters considerable difficulties, and we feel sure that the committee will see to it that the Press is treated with greater courtesy on future occasions.

In the class for a group of miscellaneous plants arranged to occupy a space 25 feet by 12 feet, A. E. BAINBRIDGE, Esq., Lynwood Jesmond, Newcastle, was placed 1st, for a most gracefully-arranged collection of foliage and flowering plants, the particular features in the group being finely-coloured Codiaums, retaining their foliage to the base. The flowering plants in the centre consisted of finely-flowered specimens of *Thunia Marshalliana*, hybrid *Cattleyas*, and *Odontoglossums* in variety. 2nd, Mr. W. A. HOLMES, West End Nursery, Chesterfield, Derby. This group consisted principally of finely-grown Codiaums, but the effect was much heavier in appearance than the 1st prize exhibit, and too few flowering plants were employed. 3rd, Mr. H. H. HILLIER, Green Park Gardens, Darlington. This group was very well arranged. *Roses* and *Bougainvilleas* being a special attraction.

The class for six plants in bloom, distinct varieties, was, as usual, contested by the local pitmen, whose plants were splendidly shown. Mr. J. ELLISON, Shankhouse Terrace, Cramlington, was placed 1st for grand specimens of *Clerodendron Balfourii*, *Allamanda Hendersonii*, *Stephanotis floribunda*, *Dipladenia amabilis*, *Clerodendron fallax*, and a very large specimen of *Hydrangea hortensis*. Messrs. ARTHUR & HARRISON, West Wylam, Prudhoe, followed closely. In the centre of this exhibitor's group was a large specimen of *Oncidium flexuosum* with upwards of 30 spikes of flower, with grand plants of *Statisia profusa* and *Bougainvillea Sanderiana*, *Clerodendron Balfourii* and *C. fallax*.

For six table plants, A. E. BAINBRIDGE, Esq. (gr. Mr. Bell) was awarded the 1st prize, and Mr. H. H. HILLIER the 2nd prize.

In the cut flower classes, the best 12 bunches of Sweet Peas were shown by The Rt. Hon. Sir GEORGE TREVELYAN, Bart., Wallington Hall Gardens, Cambo, Northumberland (gr. Mr. E. Keith), the collection being one of the finest ever shown in the North of England. All the spikes, with the exception of Thomas Stevenson, had four flowers each. The following varieties were also included: Hugh Dickson, Etta Dyke, Marjory Linzee, Isobel Malcolm, J. Ingman, Dobbie's Edrom Beauty, Elsie Herbert, Sunproof Crimson, Mrs. C. Breamore, Masterpiece, and Tom Bolton. 2nd, Earl GREY, Howick House, Lesbury. The variety Marjory Willis was shown particularly well by this exhibitor. 3rd, Mr. F. BELL, Nurseryman, Whitley Bay.

Mr. E. KEITH was 1st in both Messrs. Sutton & Sons' and Messrs. E. Webb & Son's classes.

ROSES.

In the class for 36 *Roses* in 18 distinct varieties, Messrs. HARKNESS & Co., Hitchin, were awarded the 1st prize. The best flowers in this exhibit were Hugh Dickson, White Maman Cochet, Mrs. J. Laing, and Lyon. 2nd, Mr. ARTHUR H. RIGG, Nurseryman, Shipley Glen, Baldon.

Messrs. HARKNESS & Co. also excelled in the class for 24 blooms in 12 distinct varieties; 2nd, Mr. A. H. RIGG; 3rd, Messrs. G. Gibson & Co., Leeming Bar, Bedale.

For 12 *Roses* to include eight distinct varieties, Messrs. HARKNESS & Co. were again successful.

In the class for 18 bunches of hardy herbaceous flowers was seen the finest display of bloom in the show. The 1st prize was won by Messrs. GIBSON & Co., Bedale; 2nd, Messrs. HARKNESS & Co.; 3rd, Messrs. LONGSTER & SONS, Malton, Yorkshire.

The prizes offered for a collection of Carnations were awarded as follows: 1st, J. BRENNAND, Esq.; 2nd, Mr. W. LAWRENSON, Egglecliffe; 3rd, the Earl of DURHAM (gr. Mr. W. Smith).

FRUIT AND VEGETABLES.

The fruit classes were, in the whole, well contested. J. BRENNAND, Esq., Baldersby Park, Thirsk (gr. Mr. E. Hathaway), was placed 1st for eight dishes of fruit. He showed fine bunches of Muscat of Alexandria and Madresfield Court Grapes, Royal George Peaches, Universal Melon, Early Rivers Nectarine, grandly-coloured fruits of Lady Sudeley Apple, Brown Turkey Figs, and The Czar Plums. 2nd, J. DRAKES, Esq., Oxford House, Market Rasen (gr. Mr. Parker). The Grapes in this exhibit were very fine, but the other fruit in some cases appeared to be over-ripe. 3rd, The Rt. Hon. Lady BEAUMONT (gr. Mr. W. Nicholls).

In the class for four dishes of fruit Mr. BRENNAND was placed 1st; Mr. J. DRAKES, 2nd; and Lady BEAUMONT, 3rd.

The best four bunches of Grapes in not fewer than two varieties were shown by Mr. BRENNAND, the varieties being Cannon Hall Muscat, Lady Hutt, Madresfield Court, and Black Hamburgh. 2nd, Mr. DRAKES, who showed four fine bunches of Madresfield Court, Black Hamburgh, Muscat of Alexandria, and Buckland Sweetwater. 3rd, Lady COWELL, Clifton Castle, Yorkshire (gr. Mr. J. R. Gardiner).

In the class for two bunches of Muscat of Alexandria Grapes, Mrs. H. F. SWAN, Prudhoe Hall, Prudhoe, Newcastle-on-Tyne (gr. Mr. G. Shotton), was the 1st prize; J. KNOTT, Esq., Close House, Wylam-on-Tyne, being placed 2nd. Mr. BRENNAND had the best two bunches of white Grapes any other variety in large bunches of Lady Hutt; 2nd, JAMES KNOTT, Esq., with Foster's Seedling.

Mr. DRAKE was placed 1st in the class for two bunches of Black Hamburgh; Lady COWELL being 2nd; and The Rt. Hon. Lord GREY, Howick, Lesbury (gr. Mr. W. Lambert), 3rd.

For two bunches of black Grapes any other variety, Lady COWELL was 1st with Madresfield Court; 2nd, Mr. DRAKES.

In the vegetable section the prizes were given by Messrs. Sutton & Sons and Messrs. Ed. Webb & Sons, Lady BEAUMONT winning the 1st prize in each case.

NON-COMPETITIVE EXHIBITS.

Gold Medals were awarded to Messrs. KENT & BRYDON for a miscellaneous group of herbaceous plants, pot *Roses*, greenhouse plants, ornamental *Acer*s, and other hardy foliage plants; Messrs. JOHN FORBES, LTD., Howick, for a grand display of *Pentstemons*, *Phloxes*, *Delphiniums*, *Violas*, &c. To Messrs. ED. WEBB & SONS, Stourbridge, for a very imposing exhibit of Sweet Peas, *Liliums*, *Gladioli*, herbaceous plants, fruit and vegetables. To Messrs. DICKSON, Chester, for *Roses*, herbaceous plants and annuals. To Messrs. CLIBRANS, Manchester, for *Roses*, which constituted one of the most attractive features in the show. To Messrs. SUTTON & SONS, Reading, for a grand display of fruit, flowers, vegetables and salads. To Mr. W. LAWRENSON, Yarm, for *Roses*, Carnations, and other flowers; and Messrs. BLAKE BROS., LTD., for Alpha Spraying Apparatus.

Silver Medals were awarded to Messrs. IRVINE & SONS, Jedburgh, for *Delphiniums*, *Phloxes* and *Pentstemons*.

EASTBOURNE SWEET PEA.

JULY 19-20.—A most successful exhibition of Sweet Peas was held in the delightful Floral Hall, Devonshire Park, on these dates. Notwithstanding the great heat, the hall was cool, and the majority of the flowers appeared fresh even on the second evening.

A silver bowl was offered in the first class for the best display of Sweet Peas, and this was won by Mrs. KENSINGTON, Upheld (gr. Mr. F. Beale). The blooms were large, fresh and well coloured, the best varieties being Earl Spencer, America Spencer, Flora Spencer, Florence Nightingale, Paradise Ivory, Mrs. A. Ireland, King Edward Spencer, Marjorie Willis, Mrs. C. W. Breamore, and Mrs. H. Sykes. 2nd, C. A. MORRIS FIELD, Esq., Tunbridge Wells (gr. Mr. J. E. Allan). 3rd C. DIPLOCK, Esq., Polegate (gr. Mr. G. Whitehorn).

The class for 12 bunches of Sweet Peas brought a magnificent array of blossoms. The 1st prize

was awarded to Mr. W. H. SMITH, Hailsham. This gentleman won many other prizes, his flowers in every instance being of superb quality. The varieties he showed in this class, in which a silver cup was offered, were Isobel Malcolm, John Ingman, Arthur Unwin, President, Masterpiece, Othello Spencer, Mrs. Hugh Dickson, Edna Unwin, Nora Unwin (extra fine), Mrs. C. W. Breamore, Hercules, and Sunproof Crimson (grand). 2nd, Mr. H. COSHAM, Eastbourne. 3rd Mr. W. WELLS.

Mr. JAMES BOX, of Lindfield, Haywards Heath, won the 1st prize offered for the best display in the class open to trade exhibitors. Decorated tables numbered 23.

NON-COMPETITIVE EXHIBITS.—These added greatly to the success of the show. Messrs. SUTTON & SONS staged a large and effective arrangement of flowers, fruits and vegetables, large pyramids of their new Clarkias being especially noticeable. The exhibit was awarded a Gold Medal and a silver bowl offered for the best honorary exhibit in the show. Another important honorary exhibit was shown by Mr. C. F. WALTERS, Balcombe, Sussex, who had a magnificent arrangement of Carnations, for which also a Gold Medal was awarded. Messrs. G. & A. CLARK, LTD., Dover, were awarded a Silver Medal for a large collection of hardy herbaceous plants and a picturesque rock garden, which occupied a large space in the centre of the hall. Mr. JAS. BOX, Lindfield, Sussex, also had a fine exhibit of hardy and perennial flowers, his *Phloxes* being particularly good. A Silver-gilt Medal was awarded to this exhibit. Messrs. YOUNG & CO., of Cheltenham, staged Carnations, for which a Silver-gilt medal was awarded. Mr. T. DURANT YOUNG, Rose-grower, Eastbourne, displayed choice *Roses*, for which a Silver Medal was awarded. Messrs. H. G. WHITE & CO., received a Silver Medal for a collection of fruit. Mr. C. W. BREAMORE, Winchester, also gained a Silver Medal for a collection of Sweet Peas. Good non-competitive exhibits were also staged by Mr. WM. KNIGHT, Hailsham Nurseries; Mr. C. T. SCOTT, Upton Nurseries; Mr. CECIL CHANDLESS, Berwick; and Messrs. WELLS & CO., Merstham.

NATIONAL VEGETABLE.

JULY 19.—We publish the society's official report on early Peas sent for trial to the Times Experimental Station, Sutton Green, Surrey. The Peas were inspected by the committee on the above date.

The total number of stocks sent for trial was 50, supplied by 22 seedsmen. The sowings took place on March 19, in rows 20 feet in length, all being admirably grown and staked. For purposes of comparison the varieties were divided into dwarf and tall growers, the former ranging from 15 inches to 24 inches in height; the latter ranging from 2½ feet to 4 feet in height. Of the dwarf section three marks or "Highly Commended" were awarded to Daffodil, from Messrs. JAMES CARTER & Co.; The Laxton, from Messrs. LAXTON BROS.; English Wonder, from Messrs. DOBBIE & Co.; Peter Pan, from Messrs. WATKINS & SIMPSON; and Little Marvel, from Messrs. WEBB & SONS and Messrs. BARR & SONS. Of taller varieties Pilot, 3 feet in height, received three marks or "Highly Commended," from Messrs. DICKSON, BROWN & TAIT, WEBB & SONS, ALEX. DICKSON, HURST & SONS and YATES of Evesham. Three marks were also awarded to Gradus, 3½ feet, from Messrs. DOBBIE & Co., DICKSON, BROWN & TAIT, WATKINS & SIMPSON, ALEX. DICKSON & ROBERT SYDENHAM LIMITED. Three marks were also awarded to Ready Reckoner of the Pilot type, from Mr. W. G. HOLMES, Tain, N.B.; Early Primo, from Messrs. DICKSON & ROBINSON and Messrs. WATKINS & SIMPSON; Tallman, from Messrs. SHARPE & Co. of Sleaford; First and Best, from Messrs. DICKSON & ROBINSON; Ideal, from Messrs. SUTTON & SONS; Glory of Devon and Western Express, from Messrs. ROBERT VEITCH & SONS. Two marks were awarded to Giant Lightning, from Messrs. BARR & SONS; Vanguard, from Messrs. SHARPE & Co.; and Snowdrop, from Messrs. JAMES CARTER & Co.

Many varieties sent bore round seeds in small pods, and these were found to be greatly deficient in cropping qualities and in flavour.

NATIONAL CARNATION & PICOTEE. (SOUTHERN SECTION.)

JULY 25. The annual show of the National Carnation and Picotee Society was held on Tuesday last in the Royal Horticultural Hall, Westminster. Owing to the drought there was a considerable falling off in the number of entries, and many were withdrawn at the last moment. The keenest competition centred round the classes for the smaller growers. The classes for 18 "dressed" blooms only brought two competitors but those for 12 blooms had six and those for six blooms eight competitors.

An important change in the schedule was made this year by substituting the terms "flowers shown on cards" and "flowers shown as grown," for the old-fashioned and well-known terms, "dressed" and "undressed."

DOUGLAS winning the 2nd prize, but in the classes for Fancies, White-ground Picotees and Yellow-ground Picotees, the positions were reversed, Mr. DOUGLAS winning the 1st prize in each case.

The varieties shown in the premier collections were as follow:—

Bizarres and Flakes.—Briar Lea, Bo-peep, C. H. Herbert, Ethel Macrae, E. Adams, Guardsman, Gordon Lewis, Geo. Melville, Jo. Jester (2), J. S. Hedderley, Matecor, Miss T. Lord, Robt. Houlgrave (2), Shamrock (2), and Wilfred.

Fancies.—Alice B. Stewart, Erl King, Forester, Hidalgo, Ironside (2), King Solomon, Liberté, Linkman, Lord Steyne, Mrs. Gardiner, Mrs. Penton, Orient, Pasquin, Sam Weller, and Seedling.

Picotees were:—1st, Mr. H. R. TAYLOR, Cheam; 2nd, Mr. C. F. THURSTON, Wolverhampton; and 3rd, Mr. H. MATHIAS, Medstead; and for Yellow-ground Picotees—1st, Mr. H. MATHIAS, Medstead; 2nd, Mr. C. F. THURSTON, Wolverhampton; and 3rd, Mr. W. H. PARTON, Moseley. In the corresponding classes for six blooms, Mr. J. J. SHELDON, South Woodford, was placed first for Bizarres and Flakes. Mr. F. W. GOODFELLOW, Walsall, was 1st for Fancies and Yellow-ground Picotees, and Mr. G. D. FORD, Acock's Green, for White-ground Picotees.

BLOOMS SHOWN IN VASES.

The association of three or more flowers of one variety in a vase, with the addition of Carnation foliage and buds, made these classes very attractive. In the four classes for six vases of six varieties of Selves, Fancies, White-ground Fancies, and Picotees respectively, Mr. J. DOUGLAS, Edenside, Great Bookham, and Messrs. A. R. BROWN, LTD., Wychall Nurseries, King's Norton, were again the only competitors, and in each class the awards were made in that order. Mr. DOUGLAS's winning blooms were as follow:—Selves: Daffodil, Golden Oriel, Mme. Carlisle, Mrs. G. Marshall, Mrs. Griffiths Jones, and Rosy Morn. Fancies: Forester, Lara, Liberté, Linkman, Lord Steyne, and R. A. Rowberry. White-ground Fancies: Caesar and Pompey, Delicia, Felix, Lass O'Gowrie, Millie, and The Bride. Yellow-ground Picotees: Her Majesty, J. Ruskin, Mrs. Lennox, Onward, Santa Claus, and Togo.

For 12 varieties of Selves, Fancies, and Picotees, Mr. J. DOUGLAS and Messrs. A. R. BROWN were again placed 1st and 2nd respectively.

In the second division for four varieties, Mr. A. W. JONES, Stechford, near Birmingham, was placed 1st for Selves; Mr. H. MATHIAS, Medstead, for White-ground and other than White-ground Fancies, and Mr. R. MORTON, Woodside Park, N., for Yellow-ground Picotees. The 1st prize in the class for nine vases of Selves, Fancies, and Yellow-ground Picotees was won by Mr. W. H. PARTON, Moseley.

COLOUR CLASSES.

The open classes for flowers shown as grown, nine blooms of one variety in a vase, with Carnation foliage, were, on the whole, well contested, and formed, perhaps, the most useful group as indicative of the best varieties in their respective colours. The best Rose Self was Mrs. Flight, from Mr. H. MATHIAS, Medstead, but the only other competing flower was Messrs. A. R. BROWN's Ayesha, which received the 2nd prize. Kate Nickleby, shown by Mr. DOUGLAS, was the best white; 2nd, Sir Galahad, shown by Capt. A. GORDON RUSSELL, Wheatley, Oxon. The variety Mrs. G. Marshall won the 1st and 2nd prizes in the class for Maroons, Messrs. A. R. BROWN's flowers being placed 1st and Mr. DOUGLAS's 2nd. In the Yellows, four vases of Daffodil were shown and one each of Cambria and Solfaterra. Mr. H. LAKEMAN, Thornton Heath, won the 1st prize with Daffodil, and the same variety, shown by Miss SHIFFNER, Wallands House, Lewes, was placed 2nd. Adonis and Cardinal were the only Reds staged, the former, from Mr. DOUGLAS, securing the 1st place. The best Yellow-ground Picotee was Mr. H. MATHIAS's Togo, Mr. DOUGLAS's vase of the same variety being placed 2nd.

Elizabeth Shiffner, shown by Miss SHIFFNER, was the winning buff-coloured variety. Pasquin (one of the premier blooms) won the 1st prize for Mr. DOUGLAS in the class for Yellow-ground Fancies, and The Bride, also from Mr. DOUGLAS, in the Fancies other than Yellow or Buff-ground. In the corresponding classes for amateurs (third division), the competition was keener. 11 Yellow-ground Picotees being staged, nine Dark Reds, and Yellow Selves, eight Buff and White Selves, seven Reds, and five Pinks.

SEEDLINGS.

In the classes for seedlings, the quality of the blooms was weak throughout. Five Selves, four Yellow-ground Picotees, two Bizarres, two Fancies, and one White-ground Picotee were staged, but the only award made was a 1st prize to Messrs. A. R. BROWN, LTD., Wychall Nurseries, King's Norton, for the self-coloured flower Mrs. F. J. Johnstone.

CUPS.

The most important cup was the Martin Ridley Smith Memorial Challenge Cup, offered for the first time last year, when it was won by Mr.



(Photograph by John Gregory.)

FIG. 37.—BORDER CARNATION HERBERT NEWMAN: PETALS WHITE, STRIPED WITH SCARLET.

(Received R.H.S. Award of Merit on the 18th inst. when shown by Mr. A. F. Dutton.)

which in some quarters are held to have been the cause of misconception. Another and more serious change is the omission of the classes for "dressed" Selves. These classes have always been of special interest, and we cannot view their withdrawal without regret. It followed that, although the schedule made provision for a premier Self on a card, no prize was awarded. No novelty of unusual merit was exhibited before the committee. The exhibits from the smaller growers frequently showed evidence of the damage done by thrips.

FLOWERS SHOWN ON CARDS.

In the classes for 12 blooms shown on cards, in not fewer than 12 varieties, Messrs. A. R. BROWN, LTD., Wychall Nurseries, King's Norton and Mr. J. DOUGLAS, Edenside, Great Bookham, were the only exhibitors. Messrs. BROWN were placed 1st for Bizarres and Flakes. Mr.

White-ground Picotees.—Fair Maiden (2), Favourite, Fortrose, John Smith, Lavinia, Lena, Mrs. Herbert (2), Mrs. Openshaw (2), Hon. Mrs. Kenyon, Mrs. G. Chaundy, Polly Brazil, Queen of Spain (2), W. E. Dickson, and Seedling.

Yellow-ground Picotees.—Agnes, Archie Brown, Exquisite (2), Her Majesty (2), John Ruskin (2), Lord Freemantle, Mary Lennox, Mrs. Douglas Galton, Onward (2), Santa Claus, Styx, Taylor's Seedling, and Togo (2).

Competition was keener in the class for 12 blooms displayed on cards, in not fewer than nine varieties. Mr. R. H. TAYLOR, Cheam, was placed 1st with Bizarres and Flakes; 2nd, Mr. C. F. THURSTON, Wolverhampton; 3rd, Mr. H. MATHIAS, Medstead. Mr. A. W. JONES, Stechford, near Birmingham, won the 1st prize for Fancies; Mr. C. F. THURSTON, Wolverhampton, being placed 2nd; and Mr. W. H. PARTON, Moseley, 3rd. The awards for White-ground

W. BYNG KENDRICK, Esq., Metchley House, Harborne (gr. Mr. J. Webb), had an effective group of double-flowered tuberous rooted Begonias, *Francoa ramosa* and a good selection of varieties of *Campanula pyramidalis*. (Bronze Medal.)

Messrs. A. R. BROWN, LTD., King's Norton, showed Carnations in great variety and of good quality. A collection of Roses was also included in this attractive exhibit. (Silver Medal.)

Mrs. PEYTON, Augustus Road, Edgbaston (gr. Mr. W. Young), had a nicely-arranged group of foliage and flowering plants, in which silver-leaved Caladiums and Eulalias were associated with well-coloured Coleuses and profusely-flowered Gloxinias and Fuchsias, the latter as dwarf bushes and tall pyramids. (Silver Medal.)

Mr. C. H. HERBERT, Hazlewood Road, Acock's Green, made an exhibit with hardy flowers and greenhouse plants. He had large bunches of Galegas, Delphiniums, Coreopsis, Phloxes, Gailardias, and a batch of plants of Marguerite Mrs. F. Sander bearing very large, perfectly double, pure-white flowers. (Silver Medal.)

Mr. H. N. ELLISON, West Bromwich, occupied 120 square feet of tabling with a representative collection of Ferns, in which we noted beautiful plants of *Gleichenias*, *Nephrolepis*, *Polypodiums*, *Davallias*, *Adiantums*, *Gymnogrammas* and *Selaginellas*. Mr. ELLISON also showed two dozen well-coloured plants of *Dracena Brantii*. (Silver Medal.)

Mr. O. HOLDING, Heathfield Road, Edgbaston, sent plants of seedling Coleuses. (Vote of Thanks.)

Classes were provided for Roses, Sweet Peas, hardy herbaceous cut flowers and miscellaneous plants. The most successful exhibitors were: Mr. W. C. BURCHELL, Bourneville; Mr. S. SMITH, Bourneville; Mr. R. BRUCE WAITE, Harborne; Mr. W. YOUNG, Edgbaston; Mr. E. DEAKIN, Hay Mills, and Mr. W. HARRIS, Lapworth.

LAW NOTE.

DISPUTE ABOUT A NURSERY.

In the Chancery Division of the High Court Mr. Justice Joyce heard an action recently by Mr. Leonard Wm. Webb, a builder of Lewisham, against Mr. Samuel Griffin, to set aside the sale to plaintiff of the Beaconsfield Nurseries, Trafalgar Road, Portslade, Brighton, on the ground of alleged misrepresentation. Plaintiff also claimed damages. Defendant denied misrepresentation either on the part of himself or agent.

Mr. Hughes, who appeared for the plaintiff, said that the defendant had carried on the nursery in question since 1887, and for three years also had three florist's shops in Brighton. Plaintiff had a brother who had been a nursery gardener for a long time, and knew the business very well. In the early part of last year plaintiff was proposing to buy a nursery with a view to his brother managing it for him. He saw an advertisement in the *Gardeners' Chronicle* for the sale of defendant's business for £1,500, the average returns being stated to be between £1,500 and £3,000 a year. Plaintiff saw the defendant and his agent Mr. Rich, and the alleged misrepresentations complained of were (1) that the average returns from the nursery (exclusive of the shops) were £1,500 to £3,000 a year, which plaintiff said was nowhere near the truth; (2) that the net profit was £360 to £400 a year; and (3) that the takings from the sales and the nursery itself were enough to cover the expenses. Defendant agreed to take £50 worth of flowers, plants, &c., per week from plaintiff if the latter purchased the property. According to plaintiff's case it was quite impossible for anyone to produce £50 worth of produce a week at the place, but the defendant took scarcely anything. In six months he had only purchased plants to the extent of £177.

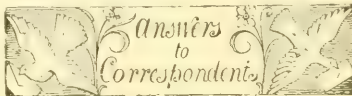
The plaintiff, giving evidence, said that Mr. Rich gave him a glowing description of the business and impressed him with the idea that it was a very good thing. After further interviews with the defendant and Mr. Rich, at which the alleged misrepresentations were made, he agreed to pay £1,100 for the business and £125 for stock on ground opposite

the nursery, defendant undertaking to take £50 worth of produce per week all the year round. He, however, never took anything like this quantity, and at the end of six months had only accepted £177 worth of produce. There were only two or three regular customers, who together spent only some 2s. to 5s. a week. The takings were sometimes 16s. a week, but occasionally they were as much as £5 to £6. Up to December he (plaintiff) had sustained a large loss. He put implicit faith in what was said to him in regard to the concern. He believed Mr. Rich's statements that the profits were from £500 to £400 a year, and that the takings would pay the expense of the nurseries. Mr. Griffin had told him more than once that he would never regret his purchase.

Cross-examined, plaintiff said he had no experience in the nursery business, although his brother, who managed the concern, had been in the trade for many years. It was true that his brother had offered himself as manager to Mr. Griffin some time previously. He admitted that the profits would depend on the management of the business, provided that the nurseries were capable of production. When witness took the business there were nine small glasshouses, all of which were in a dilapidated condition. He knew nothing about defendant having expended £1,000 in one year for the purchase of bulbs. Asked as to whether he was aware that the profits on bulbs sometimes amounted to 100 per cent., plaintiff said he would certainly like to see the bulbs that would produce that profit. He admitted expending in one year £500 on bulbs, but he had not calculated what the profit would be on that amount. He denied that at any time conversations took place as to how Mr. Griffin had built up his business, and acquired the land and houses thereon out of the earnings of the nurseries. Plaintiff added that he brought his son and his son-in-law into the business. The former was a plasterer with a taste for gardening, and the latter a grocer's assistant.

Plaintiff was about to re-enter the witness box when his lordship gave a strong intimation that the parties should come to a settlement, and as a result, after consultation, Mr. Boxall announced that they had come to terms.

The action was settled on condition that all charges of fraud be withdrawn and the action be dismissed with costs, defendant to take back the nurseries on certain terms.



••• The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

A GARDENER'S NOTICE: *T. W.* It is customary for an under gardener to give or receive one week's notice to terminate his employment.

BEGONIAS AND CYCLAMENS: *F. W. S.* The Begonias are attacked by eelworm. The old plants should be destroyed after cuttings have been taken for obtaining a fresh batch. Sterilise the soil by heating, or mix quicklime with it. The Cyclamens are injured by thrips. Dip the foliage in an insecticide.

FERN FRONDS TURNING BROWN: *J. W.* The plants show no signs of fungous disease. The trouble is caused by a too stagnant atmosphere. Ventilate the house freely in the early morning.

GARDENER'S WAGES ON CORONATION DAY: *A. H. B.* It has been judiciously decided that head gardeners employed by private persons come under the category of domestic servants, and if such a servant is absent from a day's work with his master's leave he is entitled to payment; as to an under-gardener, the position is not so clear, and precise details of the facts in any particular case would be necessary before we could express an opinion.

GRAPE(S): *S. W. O.* and *T. Sims.* No disease is present. Too much moisture in the air is the probable cause of the unsatisfactory condition of the berries.

GRAPE(S) TURNING BROWN: *Stort.* No disease is present. The trouble is due to some error in cultivation.

GROWTH ON ITALIAN POPLAR: *W. E.* The growth is a fungus called *Libertella aurantiaca*. It is not a parasite.

"MOSS" ON LAWN: *R. J., Harrigate.* The plant you send is not a Moss, but the Pearlwort, *Sagina procumbens*, related to the Chickweeds. The turf should receive a dressing of some nitrogenous manure which will cause the grass to grow luxuriantly, and in time crowd out the weed. The presence of Pearlwort indicates a light, impoverished soil.

NAMES OF PLANTS: *La Rose.* *Ailanthus glandulosus*.—*L. B., Tenby.* 1, *Veronica Traversii*; 2, *Spirea paniculata*; 3, *S. Menziesii*; 4, *Picea orientalis*; 5, *Cedrus Deodara*; 6, *Thuja gigantea*.—*W. E. B.* *Magnolia glauca*.—*T. N.* 1, *Aconitum Lycoctonum*; 2, not found; 3, *Sanguisorba canadensis* var.; 4, *Centaurea ruthenica*; 5, *Sedum album microphyllum*; 6, *Cistus florentinus*. Your specimens were badly withered, and the names are given with some diffidence.—*H. A.* 1, *Sedum ceruleum*; 2, *Linaria Cymbalaria*; 3, *Acena microphylla*; 4, *Gnaphalium margaritaceum*; 5, *Fuchsia Riccartoni*; 6, *Crassula coccinea*; 7, *Lysimachia clethroides*.—*Mustard.* Send the Carnations and Fuchsias to some nurseryman who makes a speciality of these flowers.—*Tower Lodge.* 1, *Spirea argifolia*; 2, *Olearia Heastii*.—*Durham.* *Rhynchosystis retusa*, known in gardens as *Scabellum Blumei*; *Cattleya O'Brieniana*; *Pholidota imbricata* (the brown head of bracts with no flowers); and probably *Bulbophyllum umbellatum*. All the flowers were in bad condition. You should number the specimens.—*A. H. C.* Flower decayed, but it is probably the plant known in gardens as *Hemerocallis Kwanso flore pleno*. It is the showiest Japanese form of *Hemerocallis fulva*.—*F. T.* 1, *Oncidium crispum*; 2, *Odontoglossum gloriosum*; 3, *Dendrobium Pierardii*; 4, *Dendrobium Parishii*; 5, *Calanthe veatrifolia*; 6, *Oncidium candidum*.—*Pinwill.* Specimen quite decayed, except one flower. It appears to be *Crimum variabile*.

NARCISSUS BULBS DECAYED: *F. C. E.* The *Botrytis* lily-disease is present. Treat the soil with a mixture of sulphur and quicklime.

PEACHES AND NECTARINES: *Dublin.* The fruits were sent in an over-ripe condition. Send others gathered some days before they are ripe.

PEACHES DECAYED AT THEIR CENTRES: *J. A.* The trouble is caused by an excess of water at the roots; it is probable that the drainage of the border is defective.—*F. H.* Send specimens for examination.

PEACHES DISEASED: *J. H.* Peach mildew is present. Spray the trees next spring when the leaves are unfolding and again when the fruit is set, with liver of sulphur—1 ounce in three gallons of water.

POTATOS DISEASED: *G. W. W.* The tubers are badly affected with a bacterial disease known as "black leg." No cure is known. Diseased tubers should not be used for "sets." Treat the soil with quicklime. Gas lime is even better, but if this is used the ground should remain fallow for some time afterwards.

RHODODENDRONS DYING: *G. P.* No disease is present; probably the soil is unsuitable.

ROMNEYA COULTERI WITH ABORTIVE FLOWER-BUDS: *C. E. F.* The trouble seems to be due to constitutional weakness, rather than insect or fungus pest. If you suspect insects, spray the plants with an insecticide.

TWIN CUCUMBER: *F. G.* Synchrony is common in Cucumbers: we usually receive one or more specimens from readers during the season. A case is mentioned in *Masters' Vegetable Teratology*, p. 47.

VIOLAS AND ASTERS DYING: *W. H. Y.* There is no trace of disease in either the Violas or Asters. The plants afford no clue as to the cause of the mischief.

Communications Received.—*W. H. W., E. B., W. C., J. J. W., Oak Mount.*—*A. H. C.,* Anxious.—*W. E., Uckfield.*—*J. L.,* Corbridge.—*F. B.,* Lymington.—*J. E.,* Tower Lodge.—*J. R., J. C. P., W. P.,* Litherland.—*W. B. H., E. H.,* W. A. C.—*W. W., D. F., W. J. B., J. O. B., G. B. F. R. H. S., J. C. S. S. R. H. S., F. B. C. E. P., J. P.,* Dorset.—*T. S., W. A. H.,* Holland.—*H. J. R., W. G. W., S. L. A. C., R. F. J., T. D. L., A. B. S. F. A. C., J. H. W. A. C., W. T. S. S. & Sons.*—*W. H. Y., T. A. H., A. C. B., G. F.,* La Rose.



THE Gardeners' Chronicle

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"COX'S ORANGE PIPPIN."

THIS excellent dessert Apple was raised by a Mr. Cox, who lived at Colnbrook Lawn, Slough, but I have no knowledge of the date. My first acquaintance with it was from a coloured plate in the *Flora and Pomologist*, which, I believe, was at that time owned partly by Mr. Charles Turner, the veteran florist of Slough. This nurseryman was the first to offer trees for sale, in, I believe, 1856 or 1857; but the variety was seldom enquired for, and for some 25 years its value was so little known that its sale had to be pushed in order to clear the stock. In 1875 we had in our nurseries at Maidstone 5,000 standard trees, for we were convinced of its value, but many of these trees had to be consigned to the bonfire for lack of buyers. Soon after this, however, the demand exceeded the supply. The grafting of Apples on the Paradise stock came into vogue about 1878, and trees of Cox's Orange Pippin worked on this stock often cropped in their second year. The fruits on these dwarf trees were so much superior in size and flavour to those grown on standard trees that it soon became the leading dessert variety. In one year we sold 1,300 trees at 3s. 6d. each, and from that period it has stood at the head of all dessert Apples and is now largely planted as a market variety as dwarf trees on the Paradise stock. Dr. Hogg in the *Fruit Manual* states that it is supposed to be a seedling

from Ribston Pippin. Even allowing for the great variation from the parents often seen in seedlings, I cannot agree with this conclusion. The foliage of Ribston Pippin is large, broad and leathery, whilst that of Cox's Orange Pippin is narrow, small, thin and very closely resembles that of Margil; in fact, on maiden trees, the difference in foliage between Margil and Cox's Orange Pippin is very slight. My opinion is that it is a cross between Margil and Golden Reinette.

Once Cox's Orange Pippin became well known, it took the first place amongst dessert Apples, just as Doyenné du Comice takes amongst Pears. When well grown, it is certainly worthy of the premier position, but the mistake is made frequently of planting it in unsuitable soils, with the result that great disappointment awaits the grower. Nevertheless it succeeds in such varied positions that no one can prophesy in advance whether in any particular district it will be a failure or not. I have seen choice fruits of this Apple grown in a low, cold district in an unfavourable year, and I have observed failures in places where, to all appearances, everything existed for its success. The high prices obtained for the fruit in the market justify a trial of the variety in all likely soils; as much as sixpence each has been realized for large, highly-coloured fruits, packed in boxes of 12, whilst 30s. and upwards has been obtained per bushel. A friend in Wiltshire strongly advises me to grow trees of this variety for sale as cordons on the Crab stock, as his specimens on the free stock have large, tough foliage which is not susceptible to fungous diseases. Unfortunately, his experience is the very opposite of mine, which is confirmed by other growers. We find in these nurseries that trees of this Apple grafted on the Crab are more prone to canker, the fruit to develop "spot," and the foliage to take the brown mould than those on the Paradise stock—I refer to standard trees in which the main branches are trained thinly apart and the lateral shoots spurred, as in the case of Espaliers.

One reason of its failure under market culture is that growers have planted large blocks, sometimes amounting to several acres, of this sort alone, thus preventing the needed cross fertilization with another variety. A second fault is that they have over-manured the trees, thereby inducing a late, sappy growth, which the early October frosts damage and render susceptible to attacks of canker. It is no uncommon sight to see vigorous standard trees with all their growths of the previous season killed by canker. Again, they have planted dwarf trees grafted on the unsuitable French Paradise stock. Trees worked on this stock were proved by the late Archibald Barron to die in three or four years at the Royal Horticultural Society's old gardens at Chiswick. In some cases the dwarf trees are budded too high, even on the approved Paradise stock, and thus the growth is restricted by strangulation, the scion overgrowing the stock and forming a large, woody, globular outgrowth. The

variety requires a warm, genial summer to obtain satisfactory results, and the cold, wet seasons of 1909 and 1910 were most unsuitable to it, causing old and young trees to become cankered and the growths to die back wholesale. Washes proved of little avail as a remedy, because they were washed off by the frequent showers, almost as soon as they were applied. For these reasons the variety is in disrepute among market growers, and thousands of trees have been cut down and re-grafted with Bramley's Seedling, a gross grower, which is said to give new life to the old stool, resulting in Bramley's Seedling fruiting earlier than usual. This experiment should be watched with interest.

It is evident, therefore, that, as a general rule, trees of Cox's Orange Pippin should only be planted in warm, loamy soils and in protected positions. It will repay any care given to the trees in the summer-pruning of the laterals in August, because this will keep the boughs free and open, admitting the light and air. Owing to better weather conditions this year, the trees have made healthy leaves and set a fine crop of good fruit. Thus everything points to the need of a genial season, and, where the district is an unfavourable one, to the planting of the trees on a west, and, in very cold districts, a south wall. The presence of canker is often overlooked in its young state; in cold seasons the foliage may be spotted with dark brown spots, and these in some way communicate the canker to the young shoots, which, on a close observation, are found to have small pustules upon them, developing canker the following season. Therefore, at the winter pruning it is useful to cut back to healthy wood and to burn the affected shoots.

In summer, the spotted leaves which fall should be collected and burnt as the spores of the disease may infect the growth the following year. The trees should receive a winter dressing of caustic soda or some other strong wash, and be further sprayed at the time the buds expand with Bordeaux Mixture.

I find that espalier and pyramid trees of Cox's Orange Pippin are often injured by a too drastic root-pruning; therefore, only one side should be root-pruned at a time. In place of constant applications of farmyard manure I advise, for light soils, a dressing of basic slag, nitrate of soda or kainit, and, for heavy soils, guano and soot, to be hoed in the soil in March.

Admitting that Cox's Orange is the best-flavoured dessert Apple generally known, I am of the opinion that, for richness of flavour and digestible texture, it is superseded by Roundway Magnum Bonum, the flesh of which is more melting and delicious. Its appearance would suggest a cooking fruit, but, although very large, it is delicious in flavour, and, when cooked in any form, needs no spice. As an earlier dessert fruit than Cox's Orange I consider American Mother, which ripens in October, the best, whilst Lady Sudeley is one of the choicest of the very early varieties. George Bunyard.

NEW OR NOTEWORTHY PLANTS.

SENECIO PRAINIANUS, n. sp.*

This new shrubby Senecio was procured two years ago, together with *S. Barba Johannis*, from Mr. Willy Müller, of Nocera inferiore, under the wrong name of *Senecio calcareus*. Mr. Willy Müller received these plants, together with many others, from the Cavaliere Charles Sprenger, formerly of Naples, now superintendent of the Imperial Gardens of Achilleion, Corfu. Mr. Sprenger kindly informs me that this and the other Senecio were collected for him some time ago by Mr. A. Purpus in the Barrancos of the mountain chain above Vera Cruz.

As the genus *Senecio* is a vast one, and as no monograph of it exists, it would have been an impossible task for me, with the limited library and herbarium at my disposal, to ascertain whether this plant was already described or not, had it not been for the kind help given me by the directors, both of the gardens and herbaria at Kew and Dahlem.

In habit, the new species much resembles the old and well-known *Senecio Petasitis* DC., which is a very ornamental species, where it can be grown in the open. So far, our plant is about 1 metre high. It has very ornamental foliage. The leaves measure 12-16 cm. in breadth, the petioles are 9-10 cm. long. The leaves near the inflorescence are gradually getting smaller. They are nicely palmato-lobate and rather fleshy; in shape somewhat intermediate between the form of a vine and an Ivy leaf. The inflorescence is a drooping, richly-branched and elegant panicle. The flower-heads, when opening, are of a pleasing yellow, fading to brown. With us at La Mortola the plant flowers from February till April.

I take great pleasure in naming this ornamental plant in honour of Lieut.-Col. Dr. D. Prain, Director of the Royal Gardens, Kew. A. B.

DENDROBIUM AGGREGATUM.

The plant of *Dendrobium aggregatum* represented in fig. 38 is growing in the gardens of the Agri-Horticultural Society of Burma, Kandawglay, Rangoon, the photograph having been forwarded by the superintendent, Mr. J. Gibbons. *D. aggregatum*, which first flowered in England in 1834, from plants distributed by the Royal Horticultural Society, is widely distributed in Burma, and has also been found in China. The plant is of tufted growth, the pseudo-bulbs being monophyllous and about 2 inches in length; the flowers are yellow, with an orange-coloured disc to the lip. The plant grows best in cultivation on blocks or rafts in an intermediate house. The much smaller *D. Jenkinsii*, which has compressed pseudo-bulbs, and produces flowers singly or in few-flowered racemes, is sometimes known in gardens as *D. aggregatum*; indeed, the plant has been figured under that name.

* *SENECIO PRAINIANUS* BERGER, N.S.P.—*Affinis S. suffolii* Greenm.—Frut. ramis erectis glabris teretibus subcaernosis brunneis. Folia alterna, longe petiolata, suborbiculata, basi cordata, angulato-lobata, lobis 7-9 ovato-deltoides sinibus revolutis ovatis 8-10 lanceolatis dorso aspersis constantibus, subtuberculatis, ad margines minute ciliata, dentibusque distantibus parvis cartilagineis munita, supra viridia, asperiuscula, subtus pallidiora nervis prominentibus pubescentibus; petioli carnosius patentes rubelli pubescentes. Inflorescentiae terminales, pauciflorae-corymbosae nutantes foliaceo-bracteatae; pedunculi divaricato-ramosi pubescentes basi et medio bracteis subsessilibus muniti, bracteae inferiores ovatae dentatae, superiores ovato-lanceolatae, omnes acutae patentes vel recurvae. Capitula basi bracteis 1-3 lanceolatis acutis patentibus calyculata, involucrum cylindricum squamis 8-10 lanceolatis dorso aspersis constantibus, floribus 30-40 quinque tubulosis flavi; antherae superantes lobis revolutis; antherae basi rotundatae; achenia glabra, striata, pappus setis albis scaberulis.

Mexico, in montibus supra Vera Cruz; frutex a. cl. A. Purpus lectus et in Hortulani cl. C. Sprenger introductus, primum flos in Horto Mortolensi mensibus Febr.-April, 1910.

"DIE-BACK" OF GOOSEBERRIES.*

THE Sclerotinia disease of the Gooseberry—or "die-back," as it is called in some districts in Kent—is wide-spread in England, and is liable to occur wherever Gooseberries are grown, whether in plantations or in private gardens. It attacks bushes growing on stiffish clay as well as bushes growing on light, gravelly or stony soils.

The Gooseberry bush may be attacked in four distinct places, viz., the main stem and base of the branches, the young wood of the current year, the leaf, or the berry. As regards the main stem, the spawn (mycelium) of the fungus penetrates into the tissue (permeating the cortex

the stem to the base of the branches. Here it frequently attacks some of the branches so severely that they die. The presence of dead branches in a few bushes, or the death of half the bush, is a characteristic sign of the first appearance of the Sclerotinia disease in a plantation. And, as is noted below, it is at this time that steps should be taken to stop the disease.

Renewed growth of the spawn of the fungus in the stem takes place every spring, and it is at this time that the manner in which fungus exists and spreads can be most easily seen. If a diseased stem be examined during a warm and damp spell of weather in the spring, the bark will be found to be peeling or cracking off, while greyish, fluffy patches of a "mould" ap-



FIG. 38.—DENDROBIUM AGGREGATUM.
(In the Gardens at Kandawglay, Rangoon.)

and bast), and at the end of a season's growth causes the bark to crack and peel off, often in large pieces. The part of the stem first attacked is usually that portion situated at the ground level or a little above it; eventually the spawn of the fungus "rings" the stem at this place and the whole bush is killed. Before this occurs, however—and death does not occur as a rule in the case of a well-grown bush until after several seasons from the time it was first attacked—the spawn of the fungus spreads upward in

pear at the edges of the peeling bark or in the fissures where the bark is cracked.

If there is a dead branch on the bush, then, as a rule, small greyish tufts or little cushions—which soon develop in suitable weather into fluffy patches will be found scattered here and there over its surface. These tufts of the fungus occur both on the main branches nearly down to their base, and frequently also on the younger wood.

Little hard, blackish bodies, of irregular shape, named sclerotia are also produced. They are extremely resistant to climatic conditions such

* Extract from Leaflet No. 248 issued by the Board of Agriculture and Fisheries.

as frost, drought, etc., and serve to carry the fungus through all vicissitudes from one growing season to the next.

If an affected bush has been weakened by the Sclerotinia disease in previous seasons, the renewed growth of the fungus during the spring will frequently cause the death of the bush. In the affected plantation Gooseberry bushes here and there may suddenly wilt and die out in all stages of growth; this occurs most frequently at the time when the leaf-buds have just burst open, but often also at a later stage when the bush is in full flower or bearing young berries. If such bushes are examined the stem will be found to be "ringed" by the spawn of the fungus, and on the surface of the stem will be found the Botrytis fructification. If the disease has not developed to a sufficient extent to kill the bush, the spores which are continually being produced throughout the spring and early summer serve to spread the disease to other parts of the bush.

Very commonly the spores affect the leaves, which then soon show a discoloration at their edges, which are first turned yellowish, and finally become ashy-grey or whitish. If the attack extends from the edge of the leaf inwards until the greater part of the leaf is affected, the fall of the leaf soon takes place; if, however, as is often the case, the injury remains restricted to the edges of the leaves, the latter remain on the bush until the usual time for the fall of the leaf. Whether the injury spreads over the leaf to such an extent as to make it fall prematurely seems to depend on the climatic conditions which prevail at the time. When a large number of leaves are attacked throughout a plantation and made to fall prematurely, serious damage is often inflicted; in such cases the berries produced are much smaller than on healthy bushes, and a quantity of unripened spindly shoots may be formed. The under-surface of the leaf is the part attacked, and during the months of June and July the Botrytis fructification may be found on leaves.

Another part of the bush which may be attacked is the young wood. In the case of young bushes especially, a considerable proportion of the young shoots may be attacked and much weakened or killed—a fact which has caused growers to speak of the present disease as "die-back." Infested dead shoots may constitute a prolific source of infection. Prunings of Botrytis-affected bushes left lying in a heap in a corner of the plantation or garden may develop during the following spring an abundant crop of powdery tufts of Botrytis, the spores of which, carried by the wind in countless numbers, will spread the disease through the plantation. There is also the danger of cuttings being taken from affected bushes, when many of the young bushes thus obtained will become diseased. In one case which was investigated it was found that a lot of 2,000 young bushes of "Crown Bob," planted out direct from a nursery, were already diseased—the young shoots harbouring the Botrytis stage of the fungus.

Lastly, the fungus occasionally attacks the berry and turns it rotten. The first sign of the appearance of the disease on the berry is the browning of the skin at some spot; this browning gradually extends until one side of the berry shows obvious signs of softening and of being badly diseased. The Botrytis fructification, in the form of the characteristic ashy-grey "mould," then soon appears on the surface of the discoloured portions, and the berry in a week or so is turned completely rotten and decays.

These three stages of the disease, which are given rise to another form of fructification in which winter-spores are produced, but certainly the fungus has been known under the name of Sclerotinia, while the name Botrytis has been applied to the stage where summer-spores only are produced. It is probable that the Sclerotinia stage with its winter-spores, only rarely occurs. It is certain that the disease can be perpetuated from season to season in the dormant spores of the fungus, which, by means of summer-spores spreads the disease during the growing season, and then remains dormant in the form either of mycelium in the stem or of sclerotia on its surface—both enabling the fungus to hibernate during severe winters.

REMEDIES.

1.—The best means of getting rid of the disease are the prompt removal and burning of all dead bushes or dead branches in the plantation. As soon as the leaves of bushes show the disease, the bushes in the plantation generally should be examined and any bush found with the main stem diseased should be grubbed up and burned. The prompt removal and burning of all dead (or dying) bushes, carried out for a few seasons, has proved more efficacious against this disease than spraying. It must not be forgotten that this fungus is capable of developing vigorously on dead parts of the bush. In nearly all cases—except in the comparatively rare ones where a plantation has been planted up with Botrytis-infested young bushes—the disease appears first either on single bushes scattered here and there through the plantation, or on all the bushes over a small patch of ground in the plantation, while the surrounding bushes are healthy. If the disease on its first appearance is dealt with summarily by the burning of all dead bushes and dead branches, there is no need to spray or to take any other remedial measure, since the disease soon completely disappears.



FIG. 39.—PHILADELPHUS HIRSUTUS: FLOWERS CREAMY-WHITE.

2.—Where the disease has been allowed to become severe and widespread, or where it is not in the power of the grower to remove entirely the source of the disease, spraying must be resorted to—in addition, of course, to the prompt burning of all dead bushes. A heavy spraying with a solution of copper sulphate (4 lb. dissolved in 100 gallons of water) should be given just before the buds burst, with the object of destroying the tufts of Botrytis, care being taken to spray heavily the main stems of the bushes. The infection or premature falling off of the leaves may be prevented by spraying, directly the fruit is set, with Bordeaux mixture composed of 8 lb. copper sulphate, 8 lb. quicklime, and 100 gallons of water. In this spraying it is essential that the under-surface of the leaves should be sprayed as much as possible. No injury follows the application of Bordeaux mixture of this strength, and if the spraying be done at the time indicated no spotting of the berries occurs.

3.—It may be noted finally, that any treatment which induces the bushes to make vigorous growth tends to stop the attacks of the fungus.

PHILADELPHUS HIRSUTUS.

This is one of the rarest and most graceful of the species. It has been grown for many years in the Cambridge Botanic Garden, but has not been found in other gardens where collections are most complete. In habit it is very distinct from all others, producing long, slender wreaths of flowers, of which the small, short twig in the accompanying illustration affords an example (fig. 39). The cup-shaped flowers are small and neat, and are borne usually in threes to each leaf on twigs which grow with numerous nodes to a length of 18 inches or more in the way illustrated. The leaves are ovate-oblong, distinctly hairy on both surfaces, but especially below, and they are strongly serrated, but not so coarsely as in most other species. The plant grows to a height of 5 or 6 feet, and may be regarded as one of the smaller species. Specimens from our shrub were compared with Herbarium specimens at Kew last year, and were found to be identical. So many hybrids have been raised of recent years, and they are so good, that hybridising with this plant is not to be suggested, but there is no doubt that it could be used as a parent with useful results. The plant is propagated readily from cuttings. It is a native of North America, and is figured in the *Botanical Magazine*, tab. 534. R. Irwin Lynch, Botanic Garden, Cambridge.

PLANT NOTES.

LEEA AMABILIS SPLENDENS.

I HAVE often wondered why this distinct and handsome plant is so seldom grown in gardens. The Leas are essentially tropical subjects, and for their maximum development require, during their growing season, a considerable amount of heat and moisture, combined with liberal feeding at the roots. Under these conditions, growth is very rapid, and ample space is required for the proper development of the large, pinnate leaves, which form the principal attraction of the plant. When in good condition, the leaves and the growing portions are suffused with bronzy-red, the decorative effect being enhanced by the broad, median, lucent band with which each individual leaflet is marked. Fred. W. Jeffery, Woodend Gardens, Renfrewshire.

NOTICES OF BOOKS.

BRITISH FERNS.*

THIS little book is admirably adapted for the pocket, and its portability is its chief recommendation, its contents consisting of an enumeration of the common species of Ferns and their habitats, prefaced by some chapters detailing their life history. Only one allusion is made to the wonderful capacity of Ferns for variation, the case of *Polypodium vulgare* var. *cambicum*, which could hardly escape citation, the author explaining that he has ignored the many varieties, because he intends to publish another volume dealing with this subject. In differentiating the Shield Ferns, *Polystichum aculeatum* and *P. angulare*, he omits the chief distinction, viz., that the latter has definitely stalked pinnales, while those in the former are wedge-shaped and have no definite stalk at all, the distinction relied upon by experts. Considerable space is devoted to naming the counties in which the species are found, though some of them are so ubiquitous as to involve the naming of nearly all the counties. Certain omissions are to be noted in this part of the book: thus *P. angulare* has been found in Wigtown and Perthshire, and *Pteris aquilina*, recorded in the work as absent in Monmouthshire, grows rankly and abundantly by the roadside near Chepstow in the form of *P. a. revolvens*. These, however, are minor points; on p. 5 the "stigma" of a flowering plant is described as the male organ which provides the pollen, and, on p. 11, in "Definitions," we meet with the statement "Cryptogams." These plants whose fructification is hidden away or concealed, so to speak, like the spores of Ferns partly—at least—concealed because borne on the backs of the fronds, and not usually seen until the fronds are turned up." The term is mis-spelled, and the definition is wrong.

* *British Ferns*, by Francis George Heath. (Sir Isaac Pitman & Sons, Ltd.) Price 2s. net.

THE FLOWERS OF CHAUCER.

(Continued from page 43.)

DAPHNE.

I saw the Daphne closed under rynde.
Complaynte of a Lovers Lyfe, VIII. 8.
 See Laurel.

DATE.

Fyges, and many a date tree.
Romaunt of the Rose, VII. 58.
 Chaucer may have seen the Date Palm
 in his Italian travels.

DOCK.

Nettle in dokke out.
Troilus and Criseyde, V. 196.
 An old English proverb, generally put
 "In dock out nettle," the Dock leaf being
 commonly considered a sure cure for a
 Nettle sting.

EGLANTINE.

1. The hegge also
 With sicamour was set and eglatere.
Flower and Leaf, IV. 239.
2. I felt so swete an aere
 Of the eglentere.
Flower and Leaf, IV. 239.
3. That gave so passinge a delicious smelle,
 According to the eglentere ful welle.
Ib. 240.

By the early poets, including Chaucer,
 the name Eglantine was given to the
 Sweet Briar; by later poets it is given to
 the Honeysuckle.

ELDER.

Or elles of elder bery, that growith there.
Nonne Prest his Tale, III. 240.
 Elderberries are in Chaucer's long list of
 laxatives.

ELM.

1. Wilw, elm, plane. *Knights Tale, I. 182.*
 2. The pillar elme, the coffre unto caraine.
Assembly of Fowles, IV. 195.
 3. There were elmes grete and stronge.
Romaunt of the Rose, VII. 59.
- Chaucer's Elm was what we now call the
 wych Elm, and "the pillar Elm" means
 the Elm as a support for vines, and is a
 rough translation from Ovid's list of trees,
 "arvici vitibus ulmi," and "the coffre
 unto caraine" describes its use for coffins.

EW. See Yew.

FENNEL.

Doun by a lytel path I fonde
 Of mentes fulle, and fenelle grene.
Romaunt of the Rose, VII. 37.

FERN.

Som seiden that it was
 Wonder thing to make of ferne aisschen glas,
 And yit is glas nought like aisschen of ferne,
 But for they han i-knownen it so ferne;
 Therfor cesseth her janglyng and her wonder.
Squieres Tale, II. 210.

The use of Fern ashes for potash in the
 manufacture of glass was not uncommon
 in the early days of glass-making, especi-
 ally in France.

FIG.

1. Thay sowede of fige leves in maner of
 breches. *The Persones Tale, IV. 32.*
 2. A fig for all her chastity.
Court of Love, IV. 155.
 3. Fyges, and many a date tree.
Romaunt of the Rose, VII. 58.
 4. The God of Love
 Was stondyng by a fige tree. *Ib., 69.*
- The Fig tree was introduced into Eng-
 land long before Chaucer's day.

FILBERT.

The philbert eke, that lowe dothe encline
 Her bowes grene to the erthe doune,
 Unto her knyght ycalled Demophoun.
Complaynte of a Lovers Lyfe, VIII. 8.
 The reference is to the story of Demo-
 phon and Phyllis related by Ovid; she was
 turned into a filbert after her suicide for
 love of Demophon.

FIR.

1. Ook, fyr birch. *Knights Tale, I. 182.*
 2. The sailing firre.
Assembly of Fowles, IV. 195.
 3. Asshe, firre, and oke.
Complaynte of a Lovers Lyfe, VIII. 8.
- "The sailing firre" means that it is used
 in ship-building. Spenser uses the same
 descriptive epithet, "the saying Pyne."
 See also Pine.

FLAX.

This pardoner hadde heer as yelwe as wax,
 But smothe it heng, as doth a strike of flex.
The Prologue, I. 105.

FLEUR DE LIS.

His nekke whit was as the flour-de-lys.
The Prologue, I. 88.
 As Chaucer's de lis was white, I think he
 must mean the white Lily, though the
 name is more often given to the Iris.

FUMITORY.

Lauriol, century, and fumytore.
Nonne Prest his Tale, III. 220.
 Fumitory is the English form of Fumus
 terræ, the Fumaria officinalis of botanists.
 It has the same name, more or less
 changed, in most of the European lan-
 guages.

GAITER.

Of catapus, or of gaytre beris.
Nonne Prest his Tale, III. 220.
 Gaiter, variously spelt, is an old name
 for the Dogwood; now obsolete.

GARLICK.

Wel loved he garleek, oynouns, and ek leekes.
Prologue, I. 103.

GILLIFLOWER.

1. As clowe-gelofre, and lycorice.
Romaunt of the Rose, VII. 58.
 2. And meny a clow gelofre.
Tale of Sir Thopas, III. 119.
- Gilliflower is the name given confusedly
 to many flowers of sweet smell. The flower
 meant is in most cases the Wallflower, and
 in others the Carnation.

GOLD. See Marygold.

GOURD.

I have heer in a gourde
 A draught of wyn, is of a ripe grape.
Prologue of the Maunciples Tale, III. 239.
 The Gourd dried was commonly used to
 make pilgrim- and other bottles.

GRAPE.

1. See Gourd.
 2. Nor of the reisis have the wyne.
 Till grapes be ripe and welle afyne,
 Be sore empressid, I you ensure,
 And drawn out of the pressure.
Romaunt of the Rose, VII. 127.
- Wine pressed from home-grown Grapes
 was a common drink in Chaucer's time.

GRASS.

1. And every gras that groweth upon roote
 Sche schal eek know, to whom it wol do
 boote. *Squieres Tale, II. 207.*
2. Under the which the grasse, so fresh of
 hewe,
 Was newly sprong.
Flower and the Leaf, IV. 238.
3. It forgrowen was with grasse and weede.
Ib., —.

4. The grene grass,
 So smale, so thicke, so short, so fresh of
 hewe. *Ib. 239.*
5. On the sote grasse
 I sat me downe. *Ib. 241.*
6. Ther never yet grew corne ne gras.
Boke of the Duchesse, VI. 141.
7. Downe by a floury grene went
 Ful thikke of gras, ful softe and swete.
Ib. 149.
8. Grasses growen in a mede.
House of Fame, VI. 238.
9. That sonne might there noon descende,
 Lest the tendre grasses shende.
Romaunt of the Rose, VII. 59.
10. Conies
 maiden many a turneyng
 Upon the freshe gras spryngyng. *Ib. 60.*
11. Sprang up the gras, as thikke sette
 And soft as ony velvet. *Ib.*
12. Aboute it is gras spryngyng,
 For moiste so thikke and wel likyng,
 The it ne may in wynter dye,
 No more than may the see be drye.
Ib. 64.
13. Neither thurgh gras ne rote,
 Ne hadde I hope of helpe ne bote.
Ib. 70.
14. Doune on knees anon ryght I me sette,

 Upon the smale, softe, swote gras.
Legende of Goode Women, VIII. 48.

I know of no English poet that has told
 his delight in well-shorn grass as Chaucer
 has in these passages. Then, as now, well-
 kept lawns were the glory of English gar-
 dens.

HAWTHORN.

1. To make him a garland of the greves,
 Were it of woodewynde or hawthorn leves.
Knights Tale, I. 136.
 2. Within a temple shapen hawthorn-wise.
Court of Love, IV. 179.
 3. Hawthorn brought both page and grome.
Ib. 183.
 4. Into an hauthorne by that broke.
Cuckow and the Nightingale, V. 230.
 5. Chapelets * * * * *
 Some of hauthorne, and some of the wood-
 bine.
Flower and the Leaf, IV. 246.
 6. Nay such abodis be not worth an hawe.
Troilus and Criseyde, V. 145.
 7. Avayleth nought thre hawes.
Ib. 226.
 8. The cherle thei founden hem afor
 Liggyn undir an hawthorn.
Romaunt of the Rose, VII. 136.
 9. There sawe I eke the fresch hawthorne.
 In white motele, that so soote doth smelle.
Complaynte of a Lovers Lyfe, VIII. 8.
- Chaucer's Hawthorn needs no comment.

HAZEL.

1. Mapul, thorn, beech, hasil.
Knights Tale, I. 182.
2. Hasil woddis shakyn!
Troilus and Criseyde, V. 146.
3. From hasel woode, ther jolye Robin pleyde.
Ib., VI. 28.

HOLLY.

Betwex an hulfer and a wodebynde.
Complaynte of a Lovers Lyfe, VIII. 10.
 Hulfer was a name given to more than
 one tree; here it is the Holly.

HOLM.

1. Holme to whippes lasshe.
Assembly of Fowles, IV. 195.
2. Asp, aldir, holm, popler.
Knights Tale, I. 182.

In Chaucer's time this was another
 name given to the Holly. By later writers
 the name was given to the Holm Oak or
 Ilex. The Holly is still used largely for
 whip handles. H. N. Ellacombe, *Button
 Vicarage, Bristol.*

(To be continued.)

SAUSSUREA VEITCHIANA.

THE genus *Saussurea* includes nearly 70 species of hardy perennials, mostly found in the mountains of Europe, Asia, and North America; one species, *S. alpina*, is a rare native of Britain. Very few of them have any horticultural value, this new species, *S. Veitchiana* (see fig. 40) being probably the most striking, but it is not by any means a beautiful plant. When collecting for Messrs. T. Veitch & Sons, Mr. E. H. Wilson obtained seeds of *S. Veitchiana* at Fang in Central China. Plants were raised in 1902, and two specimens were presented by Messrs. Veitch to the Glasnevin Gardens. They flowered last year, and furnished the material for an illustration in the *Botanical Magazine*, tab. 8381.

The plants are quite hardy, and are flourishing on a sunny border in light, deep soil. They

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See *Tables and Summaries*, ante, pp. 64-70.)

O, SCOTLAND, N.

ELGIN.—No rain has fallen in this district for about six weeks, and as the soil here is very light in texture, the fruit crops are not up to their usual good standard. *John Macpherson, Moyne Gardens.*

MORAYSHIRE.—The fruit crops in this district are looking remarkably well. The dry weather during May and June did considerable damage in some parts; but rain came in time to save the Strawberry crop. Gooseberries are smaller than usual. The Apple crop suffered at first from want of moisture, but it is now satisfactory. Wall fruits are much better than was expected earlier in the season. Our soil is mostly a sandy

of individual trees being quite barren. The most fruitful varieties include Bismark, Stirling Castle, Wealthy, Bramley's Seedling, Chas. Ross, Lord Grosvenor, Ecklinville Seedling, Keswick Codlin, and New Hawthornden. The crops of Pears and Plums are very disappointing, notwithstanding the mild winter and spring. Late spring frosts were not so common as usual, although 2nd was registered on June 15. The trees blossomed badly, whilst the individual flowers were poor and lacked substance. The cause must be sought for in the cold and wet summer of 1910, when the wood did not mature properly. Small fruits are extra good. Strawberries only average; but Morello Cherries are very plentiful. Peaches and Apricots are not largely grown out-of-doors in this district. These gardens are situated in a close proximity to hills, and are 450 feet above sea-level. The average rainfall amounts to about 42 inches. The soil consists of a heavy loam, containing a certain amount of alumina, and rests on a hard, clayey, gravel subsoil, which is not conducive to good drainage. *William L. Minty, Ardross Castle Gardens, Ayrshire.*

SUTHERLANDSHIRE.—The fruit crops in this district are generally good. The weather in spring was very favourable to the setting of the blossom, there being an absence of frost. The drought proved trying to Strawberries, but though the berries were smaller than usual, there was an abundant crop. Our soil is a fairly deep one, light in texture, and rests on gravel and sand. *D. Melville, Dunrobin Castle Gardens, Sutherland.*

I, SCOTLAND, E.

ABERDEENSHIRE.—All small fruits are good crops, especially Currants. Strawberries were a small crop, owing to the drought. Apples are a better crop than they have been for some years. *James Grant, Rothienorman Gardens.*

—The fruit crops generally in this district are over the average, both as regards quantity and quality. Apples and Peaches are particularly good. Small fruits also are good, Strawberries, Black Currants, and Gooseberries being very plentiful, which may be attributed to the fine weather. The soil here is a rather heavy, although rich loam, the subsoil having a slight indication of clay. *John McKinnon, Haddo House Gardens.*

—The fruits crops in this district give promise of being considerably above the average this season. Apples especially, and most of the small fruits promise to be heavy crops. This being a late district, the fruits are too immature for me to give an exact statement as to their quality, but they promise well so far. Apples were practically a failure in these parts last year, and the rest the trees had in consequence may partly account for the heavy crops they are carrying this year. The soil in these gardens is a good, friable loam. *W. Henderson, Melrum House Gardens.*

BANFFSHIRE.—The fruit crops in this district are a fortnight in advance of ordinary seasons. There are many complaints of Black Currants dropping in May and the early part of June. Gooseberries are a heavy crop, but the fruits are small. Strawberries were not so large as usual this season, owing to the dry weather in the early part of June. Raspberries are very promising. *Geo. Edwards, Ballindalloch Castle Gardens.*

—The fruit crops in these gardens are well above the average in quantity. Apples are an exceptionally heavy crop, so much so that nearly every tree had to be thinned of some of the fruits. Pears are a very light crop, and this is difficult to understand, as there were plenty of flowers and ideal weather conditions while the trees were in blossom. All small fruits are very plentiful. Peaches out-of-doors are satisfactory: the foliage has been only slightly affected with blight this season. Our soil is a dark loam resting on sand. *Alex. Morton, Cullen House Gardens, Cullen.*

BERWICKSHIRE.—Apples generally crop well in this district, especially the variety Bramley's Seedling, which is the maincrop Apple in these parts. Plums are scarcely ever a failure here, whilst small fruits are always plentiful. Black



[Photograph by C. F. Ball]

FIG. 40.—*SAUSSUREA VEITCHIANA*: FLOWERS PURPLISH-BLACK.

have grown 2 feet high, and the radical leaves have undulate margins. The leaves are 9 to 12 inches long by about 1½ inch broad, light green, with a stout mid-rib, and hairy beneath. The stem leaves are amplexicaul with partly auriculate bases. Bladder-like membranous bracts partly enclose the flower when young, and these bracts have a purplish tint. The flowers are of a deep, purplish-black colour, and give to the plant a remarkable appearance. The anthers are black and have woolly tails; the feathery pappus is purplish. *C. F. Ball, Glasnevin Botanic Garden.*

loam, with a rough, gravel subsoil. *Alex. Dow, Durnaway Castle Gardens, Forres.*

—Fruit trees of all kinds had a good show of blossom, and, although the weather was all that could be desired during the flowering period, the fruit did not set well. This was especially the case with Pears, Peaches, and Cherries. The rains came too late to save the earlier Strawberry crop; but later sorts, as well as all other small fruits, have greatly benefited by them. *Chas. Webster, Gordon Castle Gardens, Fochabers.*

ROSSSHIRE.—While the Apple crop generally is above the average, there are several instances

Currants are generally free from attacks of mite. Pears succeed very badly, as the soil is not suitable. Cherries set well, but, owing to the dry weather in May, half of the fruits dropped. Strawberries received a check in May, but, notwithstanding this, berries have been plentiful. Apricot fruits will be small owing to the drought. Our soil is very light in texture, with a gravel subsoil: the depth of top soil is 7-8 inches. *Peter Smith, Duns Castle Gardens, Duns.*

—Fruits of all kinds set well, and promised unusually fine crops, but owing to the extremely dry weather the bulk of them, with the exception of Apples, dropped after attaining a considerable size. The soil here is very light, and dries very quickly. The subsoil is sandy. *R. Henderson, Ayrton Castle Gardens.*

CLACKMANNANSHIRE.—On my travels throughout Scotland I find that on light sandy soils the Apple, Pear, and Strawberry crops are almost complete failures, but on heavy soils the crops are about an average. *Alex. Kirk, Consulting Gardener, Alloa.*

HADDINGTONSHIRE (EAST LoTHIAN).—The soil of the district may be described as a medium loam of great fertility, overlying in the most part gravel or the old red sandstone formations. A small portion of the county overlies a clay formation. Owing to the absence of frost and favourable ripening weather in the previous autumn, a record set of blossom was obtained in many classes of out-door fruits. The setting period, however, was followed by a spell of dry weather of exceptional duration. During the latter part of this period the heat was so intense that a great quantity of fruit, both large and small, was shed by the trees and bushes. As a result, where an abnormal crop was promised, there only remained an average one, and in many cases the remaining crop is under the average. *Thomas Macphail, Archerfield Gardens, Dirlton.*

—Fruit trees of all kinds are very healthy, with clean foliage. The fruit crops as a whole are of a good average quantity, with the exception of Strawberries, which were adversely affected by the drought and the intense heat. The later crop of Strawberries, however, is not unpromising. *R. P. Brotherton, Tyninghame Gardens.*

FIFE SHIRE.—Apples set well, but the fruits are suffering from the continued dry weather. The Pear crop in this district is almost a failure. Plums are very scarce. Cherries on wall trees are a very good crop. Apricots are scarce, but the quality of the fruits is good. Gooseberries, Black Currants, and Red Currants are all good crops. There were plenty of Strawberries, but the fruit and especially the early berries, were under an average size. *D. McLean, Raith Gardens, Kirkcaldy.*

—The crops of larger fruits, with the exception of Apples, are very disappointing. The trees were smothered with blossom, but the fruits set badly. Small fruits promised well, but owing to the dry weather, much of the fruit dropped. The soil is a good garden loam, 2 to 3 feet deep, resting on a cold clay sub-soil. *William Henderson, Balbirnie Gardens, Markinch.*

FORFARSHIRE.—The prospects for very heavy crops of all fruits were, at the beginning of May, good, but, unfortunately, there has been very little rain since then. From this cause the early Strawberries were almost a failure, although with dews at night the later berries are doing better. Raspberries are a good crop, but the berries are small. The Apple crop promises to be a good average one, but if rain does not fall shortly the fruits will be small. *Andrew McAndrie, Ruthven House, Meigle.*

KINCARDINESHIRE.—The mild winter caused the earlier-flowering fruit trees to blossom in advance of the usual time, and Pears and Plums were caught by the frosts, although the later flowering trees escaped. The soil here is very light in texture, and the sub-soil gravelly. *John M. Brown, Blackhall Castle Gardens, Banchory.*

—Apples are plentiful, but they will be under an average size. Small fruits are good where the bushes are healthy. Strawberries promised well, but the berries were inferior owing to the drought. Peaches, Apricots and other tender sorts are not much cultivated in this district.

Our soil generally is of a light character. *John Scott, Banchory Lodge, Banchory.*

KINROSSSHIRE.—The fruit crop in this locality gave good promise in the early part of the season, but the dry weather in June destroyed the prospects. The soil of these gardens is very light, and the subsoil is almost pure sand. *R. Fraser, Kinross House Gardens.*

LINLITHGOWSHIRE.—The fruit crops in these parts were very promising early in the season, but the dry weather spoiled the prospects. Gooseberries are not so good as usual this year, but Raspberries are a full crop. Red Currants are about an average quantity, but Black Currants are scarce. The soil here is a heavy loam, partly on clay and partly on rock. *Frank Henderson, Wallhouse Gardens, near Bathgate.*

MIDLOTHIAN.—I am surprised, considering the dry season, at the quantity of fruit, not only in this garden but in the neighbourhood in general. Apple trees, at the time of flowering, were a mass of blossom, and the fruits set in great clusters. But the trees experienced a long spell of dry weather, and the Apple crop was only just saved from complete failure by rain, amounting to half-an-inch, which fell on May 13 and 14. Much the same applies to the Pear and Plum crops, but as these trees blossomed earlier than Apples, they experienced a longer period of drought, and being principally wall trees, the fruits set very badly. Cherries, both early and late varieties, are a splendid crop. Peaches and Apricots were so numerous as to require thinning, and are looking well after the heavy rainfall of June 24, when 2.34 inches fell in 24 hours. Black Currants, Gooseberries and Raspberries are all plentiful, although Black Currants are rather small in size. Red Currants are a light crop on some bushes. Strawberries were fairly scorched up except where the soil seemed to be excessively deep, or where they had some shelter from bushes. The soil here is a rich, dark, deep loam and most suitable for all fruits. *Benjamin Ness, Oxenford Castle Gardens, Dalkeith.*

—The fruit crops are, on the whole, much below the average this season. Apples are only a moderate crop, Pears are scarce, and Plums few. Strawberries proved a good crop, and the berries were of fine quality, but they were soon over, owing to the dry weather. Small fruits, such as Currants, Gooseberries, Raspberries and Morello Cherries are satisfactory and of good quality. *D. Kidd, Carberry Tower Gardens, Mussburgh.*

—There was an almost entire absence of frost during April and May, and, the weather being dry, the conditions were extremely favourable to the setting of the fruits. Pear trees generally did not flower so freely as usual, and some very free bearing varieties, such as *Beurré d'Amanlis*, are bearing no fruit this season. The continuous drought of May and June, with north-east winds and very cold nights, has damaged the foliage of orchard Apple trees. *James Whytock, Dalkeith Gardens, Dalkeith.*

PERTHSHIRE.—The crops of fruits in this locality are the best that we have had for many years, although want of rain, especially on our light soil may spoil the good prospects. *John Robb, Catherine Bank, Milnab Terrace, Crieff.*

—The long-continued drought has ruined the crops of small fruits. Many Plums and Pears have dropped in consequence of the exceptionally long period of dry weather. Apples only require a thorough soaking at the roots to ensure a splendid crop. Our soil is a heavy loam on a clay subsoil. *James Besant, Castle Huntley Gardens.*

6, SCOTLAND, W.

ARGYLLSHIRE.—Wall trees of Pears, Plums, and Cherries promised bountiful crops at the blossoming period, but the good prospects have not been realised. The drought in May and June may be responsible for the failure. Pears are a miserable crop. Black Currants dropped wholesale; there is, however, a fair crop of Red and White Currants. Gooseberries and Raspberries are very plentiful and of good quality. The Strawberry crop was disappointing; the one-year-old plants, particularly of Royal Sovereign, produced an excellent crop of fruits, but the

main crop of Strawberries in the open was spoiled by wet and cold. The variety *Elton Pine* may yet prove satisfactory. *D. S. Melville, Poltalloch Gardens, Lochgilphead.*

—Strawberries proved a splendid crop. Plums set well, but, owing to drought, the fruits dropped at the stoning period. Black Currants are very good, especially the variety *Boskoop Giant*. Many Gooseberries dropped owing to late frosts. *Alexander Macdonald, Castle Luchlan Gardens.*

AYRSHIRE.—Fruit trees of all kinds produced a wealth of blossoms, but late frosts and afterwards drought caused most of the fruits to drop. Strawberries proved much better than was expected early in the season. Raspberries also have been good. The soil here is of a close, retentive nature. The garden is at a low situation, and late frosts do much damage to the fruit crops. *William Priest, Eglinton Gardens, Kilwinning.*

—The fruit crops in this district are under an average quantity. A season that promised well has proved disappointing. The soil of these gardens is of a light nature and the subsoil is gravel. *D. Buchanan, Bargany Gardens, Dailly.*

BUTESHIRE.—The fruit crops generally in this district have been adversely affected by the continued dry, hot weather in June. The blossoms were injured by a continuous east wind. Gooseberries and Currants are both very good crops. Early Strawberries were of good quality, but the crop was a small one, although the later sorts were better. The soil is generally of fairly good quality, but light in texture, and this obtains all around the coast. *D. Halliday, Ascog Gardens, Bute.*

DUMFRIESHIRE.—Although the dry weather has militated slightly against some fruits and birds have proved very destructive to the trees, the fruit crops in general are slightly over the average in this district. Small fruits are in abundance; early Strawberries suffered slightly, owing to the long spell of dry weather just as they were swelling, but late Strawberries are compensating for the early ones. Small Nuts are only an average crop, but Walnuts promise to be unusually plentiful. Our soil is of a very peaty nature, varying to a light, sandy loam. *Arthur Harwood, Ardarroch Gardens, Garelochhead.*

DUMFRIESHIRE.—Apricots promise to be of good quality. Plums and Cherries are scarce, but Strawberries were plentiful and good; indeed, all small fruit are satisfactory, especially Raspberries and Gooseberries on unpruned bushes. It has been observed here for many years that when Blackberries are extra fine, as they are this year, Damsons are a small crop. *John Urquhart, Hoddon Castle Gardens, Ecclefechan.*

—Apples are a good average crop; indeed, we have not had so many for ten or more years. Black and Red Currants are good average crops as a rule. Strawberries were an extra large crop of large, grand-quality fruits. Rain fell just in time to benefit the crop. The Strawberry foliage is very dense and healthy this season, which is very remarkable considering the dry weather. Our soil is a sandy loam. *James McDonald, Dryfeholm Gardens, Lockerbie.*

—The gardens here have been entirely planted with Apple trees grafted on the Paradise within the last 14 years, and they are now giving us splendid crops of fine, clean fruit. Pears do not do well in this locality, even when trained on walls. We can always rely on having splendid crops of fine fruit of Victoria Plums on wall trees. Strawberries were small in size and ripened quite two weeks in advance of former years. Currants and Raspberries are very fine crops. *David Inglis, Drumlanrig Castle Gardens, Thornhill.*

KIRKCUDBRIGHTSHIRE.—The fruit crops here are a fair average quantity, but Pears and Plums have dropped badly. Raspberries, Currants, and Gooseberries are all good crops, but the plants are suffering for want of rain. *James Deuchars, Kenmure Castle Gardens, New Galloway.*

—Apple and Plum trees gave promise of good crops early in the season, but the cold nights in May had a disastrous effect.

Strawberries have been very good; some berries weighing as much as 2½ ounces each have been gathered in this district. *J. C. D., Dildawn Gardens, Castle Douglas.*

LANARKSHIRE.—Fruit trees in these gardens made a great show of blossom, but as our soil is a sandy loam, resting on a sandy subsoil, the long-continued drought had an injurious effect on all the fruit crops. Cherries suffered most, and three parts of the fruits dropped. Strawberries promised well, but the rains came too late to save the crop. Gooseberries, Currants, and other small fruits are all good. *John Shiells, Carstairs Gardens, Carstairs Junction.*

(To be continued.)

PICKERING PARK, HULL.

In the issue for July 22, p. 52, we published a short account of the opening of the new public park at Hull by Mrs. Pickering, wife of Mr. Christopher Pickering, who has generously presented the ground for the use of his fellow townsmen.

sports, a considerable area is allotted to tennis courts, croquet lawns, bowling greens, and a childrens' playground, whilst 25 acres are reserved as playing fields. The almshouses are erected on either side of the main entrance, the wrought iron gates of which were supplied by Messrs. Thomas Brawn & Co., of Birmingham, at a cost of £1,000. On either side of the roadway, forming the chief avenue through the park, are varieties of Maples, whilst a little way to the left of this avenue is a series of lakes, crossed at two points by bridges, the one shown in fig. 42 having been designed by one of the students at the local School of Art. It is intended to furnish this "Japanese" bridge with climbing plants consisting chiefly of Roses.

As will be understood from the following brief account of the grounds a great deal of forethought has been expended on their design; with the result that few public parks are able to boast of greater variety than is exhibited by Pickering Park.

The pond is a great feature of the park, and

authorities steadily for the past three years, so that at the time when planting could be commenced from 40 to 50,000 plants were available, and many visitors find it difficult to believe that the garden only dates from February last.

The playing fields, which are some 25 acres in extent, are separated from the park by a sunken stone wall, and on the top of this wall is planted a hedge of massed rambler Roses, which, when established and with their shoots hanging down to the water below, will form a pleasing feature. A sunken fence has been selected in order that visitors in the park may have an unrestricted view of the games in the sports ground.

It is intended to erect two conservatories with a pavilion in the centre, where refreshments will be obtainable. The flower garden and flowerbeds are planted with hardy perennials, Roses, flowering shrubs, and other permanent plants, so that summer bedding plants will not be largely needed. Many thousands of Narcissi, Tulips, and other bulbous plants have been planted in the grass. In order that visitors may obtain un-



FIG. 41.—PICKERING PARK, HULL: VIEW OF THE ROCK GARDEN.

It was in January, 1909—a time when some trouble was experienced by the Town Council in acquiring land for allotments—that Mr. Pickering first offered to make a gift of 30 acres for the purposes of a public park and to sell 20 acres for allotments, the purchase money of which should be devoted to the building and endowing of 12 almshouses and to the erection of entrance gates, and other appurtenances for the park. Later, believing that 50 acres would not be too much space for a public recreation ground to include extensive playing fields, Mr. Pickering offered to convey the whole of this area to the town free, and to make provision for allotments in another part of the borough. His generous offer was unanimously accepted by the authorities, and the gift was afterwards amplified by the addition of a strip of land on the eastern boundary, as well as by the presentation of a reading room and museum.

It being Mr. Pickering's wish that as much as possible of the grounds should be devoted to

has been skilfully constructed, for, whilst only a small part of it may be seen from any one point, some bold effects are produced. A stone shelter is surrounded by a dry stone wall to the water's edge, which is freely decorated with suitable plants, and at its base is a small bog garden containing Water Lilies, Irises, and other water-loving plants.

The rock garden covers an area of rather more than half an acre. It is built of Yorkshire stone, and already several thousands of plants have been arranged on it, including about 350 varieties of alpine and shrubs, each of which is labelled with the common and botanical names as well as the Natural Order to which it belongs. This garden has been constructed with the object of having masses of bloom for effect, and therefore ample space has been provided for planting big groups, but there are plenty of nooks and crannies in which smaller and rarer species of alpine may be planted. Provision for furnishing this garden had been made by the park's

interrupted views of the park only low fences of a light nature have been used, and then only where divisions are really necessary.

At the end of a terrace and near to the rock garden is a long, stone wall, which is already fairly well furnished with plants. On the top of the terrace is a border of perennials, with Roses, Cotoneasters, and other trailing shrubs hanging down the wall, whilst at the base is a flower border about 10 or 12 feet wide. This flower border is well filled with perennials and annuals, and these give a bright finish to the surroundings.

A wild garden, which is not yet completed, is entered by two pathways from the park, one leading from the stone bridge along the pond side and the other over the Japanese bridge. Including Pickering Park the city of Hull possesses no fewer than nine public parks and pleasure grounds, having a total area of over 224 acres. They are all under the care of Mr. H. B. Witty, the able superintendent.

The Week's Work.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCCHILD, Esq., Gunnersbury House, Acton, Middlesex.

INSECT PESTS.—The increased amount of labour occasioned in all the departments of the garden by the hot weather may have been the indirect cause of less attention than usual being paid to insect pests. If this has been so, do not lose any further time before taking measures to check them. The mealy bug thrives amazingly during the hot weather, and if its destruction is neglected it will give rise to an endless amount of trouble later. In the stove house this pest is partial to many plants, but to none more than to *Ixoras* and *Dipladenias*. In the case of *Ixoras* it is generally found amongst the trusses of blooms which, if badly infested, will be partially spoiled. The best remedy is to syringe with clean tepid water, applied not too vigorously. Mealy bug also infests the flower-trusses of *Dipladenias*; in this case a weak solution of methylated spirits applied by means of a soft

house or conservatory. The flowering of the plants will be prolonged considerably if the faded blossoms and seed vessels are removed promptly, as the side shoots will flower, if the energies of the plants are not concerned with seed formation. Strong, hardy specimens amply repay in extra flowering for any special attention bestowed upon them. Plants raised from seeds sown last spring should not be allowed to become starved in small pots. At about this date they should be well-established in 6-inch pots, and in a month's time they should be ready for transferring to 8-inch pots. The materials for potting should consist of good, fibrous loam, some well-decayed leaf-mould, and pulverised lime, or mortar rubble, which is preferable to silver sand. Pot firmly, and do not bury the crown of the plant below the soil. Stand the pots on a layer of ashes or cinders. Both the white and the blue sorts should be cultivated to provide variety.

CAMPANULA ISOPHYLLA, C. GARGANICA AND C. FRAGILIS.—These three species of *Campanula* are all suitable for pot culture, and they flower about this time. I prefer to raise the plants from cuttings rather than seed, and suitable shoots should be inserted as soon as possible after this date. They may be rooted easily in a cold frame having a north aspect.

fore, unless the showers are very copious, the watering must be attended to as usual during rainy weather.

EARLY VINES.—The vines which furnished the earliest bunches will be benefited by occasional syringings to rid the leaves of dust and red spider. The borders must not be allowed to become too dry, neither should they, at this season, receive an excess of water to cause them to become saturated. The lateral growths may, for a week or two, be allowed to extend at will, as this assists in keeping the buds at the base dormant. Endeavour to maintain the vinery, especially during hot weather, as cool as possible. Where the borders have become exhausted they should be thoroughly renovated. If this is done, the vines should not be subjected to hard forcing the following year. The work of adding new materials to the border should be taken in hand while the leaves are changing colour and before they fall. Before removing the old materials from the border the new compost should be got in readiness—a week or two in advance is preferable—and covered with mats to prevent evaporation. Commence by taking out a trench at the end of the border furthest from the canes, gradually working towards the latter with a fork, taking the greatest care of the roots, and never allowing them to be exposed to the air longer than is necessary. For this reason they should be kept well covered with damp mats, the roof of the house should be shaded, and the foliage syringed occasionally. The amount of new soil to be added will depend upon the condition of the border. See that the drainage is in good order. Over this place a layer of good turfy loam, grass-side downwards, and commence to fill in the trench with the new compost; at intervals a whole turf may be introduced. Carefully lay out the roots as the work proceeds, and make the soil thoroughly firm; take especial care, when nearing the surface, not to injure the fibrous roots, using soil in a finer condition. Give the border a watering to settle the compost, and cover with a mulching of manure. Keep the vines shaded for a few days, but admit an abundance of fresh air.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

PREPARATIONS FOR PLANTING.—Fruit trees intended for autumn planting should shortly be selected, and care should be taken to procure them from some reliable nurseryman. A few good varieties are far preferable to a great number, including untried sorts, and future success will depend largely upon procuring varieties suitable for the situation and natural soil of the district, items of importance which are often overlooked. The period of ripening, flavour, and long keeping qualities of the fruits, together with free cropping, and robust habit are some of the points to be considered by the planter when making his selection. The nurseryman's catalogues usually give particulars of the time of ripening and the keeping qualities of the fruits, and these should be studied. It is especially important to start with healthy trees, and the trees should be chosen during the summer months in the nursery, rejecting any that are attacked by canker or insect pest, or that show signs of gumming. Diseased trees would, in all probability, be the means of infecting other trees in the garden, and as prevention is always better than a cure, it is wise to avoid planting a tree which has a suspicious appearance of being diseased. In selecting the type of tree, the situation in which it will be planted must be taken into consideration. Fancy forms of training should be avoided, however fascinating or tempting they may appear to be. Espaliers, if well trained, either in fan-shape or horizontally, have a pleasing effect, and are useful in either the fruit or kitchen garden. The trees, if planted about 4 to 5 feet from the edge of the paths, according to the size of the garden, will form a hedge or screen to the vegetable crops. The narrow borders in front of the Espaliers may be planted with Strawberries or dwarf Cordon trees. Tall standards should never be introduced in a small garden, as these, when fully grown, cast too great a shade; neither should Espaliers in such cases be above 4 or 5 feet high, whilst half or dwarf standards should not be planted too closely together. In large gardens Espalier trees may be allowed to grow 6 or even 8 feet in



FIG. 42.—PICKERING PARK, HULL: THE PERGOLA BRIDGE.

(See p. 87.)

camel-hair brush will be found effectual in destroying the insect. By a judicious use of the syringe in places where insects are suspected of lurking, the mealy bug, thrip, and red spider may all be kept in check. Most trouble with insect pests in greenhouses and stoves is usually experienced with climbing plants that are trained to the roof or upright column. These need persistent attention at such times as the present. No insect, perhaps, is more troublesome in its attacks upon plants of the stove section of *Dracena* than red spider, which may often be found in colonies even before its presence is suspected. In this case, frequent syringings with soot water, as advised in a previous Calendar for destroying red spider on *Codiaeums*, will be found effectual, except in extreme cases, when sponging with an insecticide must be resorted to. Much may be done to keep insects in check by fumigation or vaporising with a nicotine preparation. Any greenhouse plants in pots infested with the insects I have named should be taken into the open air and thoroughly syringed, first with clear water and afterwards with an insecticide. If precautionary measures were adopted frequently and regularly, rather than intermittently, insect pests would not give rise to so much trouble in glass-houses.

CAMPANULA PYRAMIDALIS.—Well-grown plants of *Campanula pyramidalis* are, at this season of the year, very useful in the cool green-

FRUITS UNDER GLASS.

By E. BAKER, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

FIGS.—Permanent Fig trees growing in houses intended for furnishing a supply of fruits in the autumn must be kept growing steadily. Manure water should still be applied to the roots; the bare spaces of the house should be damped frequently, especially during hot weather, and the trees syringed vigorously. If the shoots are becoming too thick, it is advisable to thin out, wherever possible, some of the old wood, as the fruits require plenty of light to ripen perfectly. A few of the fruits also may be thinned where they are too numerous. Endeavour to keep the foliage clean and free from red spider and mealy bug. The latter is a most troublesome pest, and where trees are infested every means should be taken to combat it, especially when the trees are dormant in the winter months.

FIGS IN POTS.—Fig trees in pots have been extremely useful in supplying an occasional dish of fruits during the past few weeks. The trees will now benefit by being stood out-of-doors on a firm layer of cinder ashes in a sunny position. Continue to apply water to the roots as needed, and also syringe the plants occasionally. Rains are not always sufficient to thoroughly moisten the ball of soil about the roots of pot trees, there-

height, but 6 feet will give the best general effect. In planting this type of tree in an orchard or garden, choose a site which is sheltered from cold winds, but exposed to the direct rays of the sun. Fruit produced by Espaliers is generally supposed to be intermediate in quality, between that obtained from wall and standard trees. It is best to plant Espaliers from east to west, or in lines parallel to each other, at no less a distance apart than 12 or 15 feet, so that the trees in one row will not shade those in another.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

BULBOPHYLLUM AND CIRRHOPETALUM.—The flowers of these two genera of epiphytic Orchids are, in general, more curious than beautiful, and the plants are mostly cultivated as curiosities. The most attractive kinds include *Bulbophyllum barbigerrum*, *B. Careyianum*, *B. Lobbii*, *B. Ericssonii*, *B. virescens*, *B. reticulatum*, *B. longispalum*, *Cirrhopetalum fasciatum*, *C. Collettii*, *C. Amesianum*, *C. Micholitzii*, *C. Medusa*, *C. ornativissimum*, and *C. picturatum*. The plants may be cultivated with little trouble, and the majority of them form good specimens. They should be grown in well-drained pans or teak-wood baskets filled with a mixture of chopped and well-mixed *Osunda* fibre and moss in about equal parts, the plant being set in the centre upon a cone of the material. The best time to afford fresh compost is when the young growths are developing new roots, but root disturbance should not take place unless the condition of the compost renders this necessary. The plants grow best when suspended near to the roof, or they may be stood on a stage close to the glass. They need plenty of light, but should be shaded from excessive sunshine. An abundance of moisture should be given the roots during the growing season, and at no period should the compost be kept entirely dry. In the season of active growth, a warm, moist atmosphere should be maintained in the plant house. During the winter the plants may be removed to the intermediate house, but on no account should they be subjected to low temperatures or continuous drought.

STANHOPEA. *Stanhopea* is another genus of epiphytic Orchids, many of the species having beautiful, perfumed flowers. Although the blossoms are very gorgeous and make a showy display, they last only a short time in perfection, hence *Stanhopeas* do not find much favour with the majority of Orchid growers. The plants are easily cultivated, and are very free in blooming. On account of the pendulous character of the scapes, the plants are best grown in teak-wood baskets, so that the flower spikes may push their way through the divisions of the wood-work and hang downward. The receptacles should be well drained, and a compost similar to that advised for *Bulbophyllum* and *Cirrhopetalum* may be employed as a rooting medium. *Stanhopeas* thrive well suspended from the roof at the warmest end of the Cattleya house; they require an abundance of water at the roots whilst growing actively. Although a clear light is beneficial, very bright sunshine injures the foliage, and the syringes must be used daily over and under the leaves in order to keep down attacks of red-spider and other insect pests. After growth is finished, the plants should be allowed a long period of rest in a lower temperature, and water sufficient only to keep the pseudo-bulbs from shrivelling.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Gardener Foreman, Royal Gardens, Windsor.

THE DROUGHT.—The dry weather has seriously delayed the planting of winter crops and, in many cases, rendered the operation almost impossible. Those who mulched their summer crops will be amply repaid in finer vegetables for the extra labour incurred. Mulching is of great advantage to summer vegetable crops, and should be practised in every garden where time and material are available. Whilst dry weather lasts the garden should be cleared of all crops which are over and the ground prepared for planting Coleworts or some other crop which will be cleared in time for it to be prepared for such vegetables as early Potatoes.

CAULIFLOWERS.—The plants should receive liberal supplies of clear water, as few other garden crops suffer so much from the effects of dry weather as Cauliflowers. The watering should, as far as possible, be done in the evening, or very early in the morning, and a thorough soaking should be given. The varieties *Early London* and *Walcheren* may still be planted. Select rich ground in a sheltered part of the garden. Do not allow the plants to become stunted through want of water. The ground for this plantation should be stirred frequently with the hoe to lessen the evaporation of moisture.

FRENCH BEANS.—French Beans should be planted in pits having sashes that may be removed, for these will not be needed until the approach of frost, which usually occurs in September or October. Beans intended for an autumn supply should be allowed plenty of room between the rows so that the light and air may enter freely amongst the plants. Overcrowding is a mistake at all times, but it is more detrimental in the autumn than in the spring. Varieties suitable for sowing at the present time include *Ne Plus Ultra*, *The Belfast* and *Canadian Wonder*, which, if given plenty of room, is still one of the best varieties for a general use. Earth up the latest plantations of Beans in the open garden as soon as the plants are a few inches high, to prevent them from being damaged by autumn winds. The plants will be benefited by syringings in the evenings of hot, sunny days, also by liberal applications of water at the roots during dry weather.

SPRING CABBAGE.—A second sowing of Cabbage should be made without delay. Choose an exposed site in order that the plants may grow as hardy as possible. Sow in shallow drills drawn 1 foot apart, and cover the bed with netting to protect the seed from birds: if the drills are saturated with water the night before the seeds are sown, germination will take place quickly. There are many good varieties of spring Cabbage, but *Harbinger*, *Flower of Spring*, *Ellam's Early*, and *Offenham* are amongst the most reliable sorts for autumn sowing.

THE FLOWER GARDEN.

By R. F. BROTHSTON, Gardener to the Earl of Haddington, K.T., Tynningham, East Lothian.

SEED GATHERING.—The seeds of *Eremuri*, *Fritillarias* (Crown Imperials), various *Iris*, *Hemerocallis*, *Lupins*, *Delphiniums*, and many other plants are now ripe, or approaching maturity, and should be gathered before the seed vessels burst. Even if they are not fully ripened when gathered, the seeds, if laid out to dry, will ripen perfectly. Single-flowered *Hollyhocks*, which are blooming profusely this season, vary considerably in the colour of the flowers, and seeds should be gathered from the finer sorts only, taking care to select none out the earliest-ripened capsules, as these are less likely to contain insect hybridised seeds than those which ripen late. It is usually preferable to sow seeds of the above-mentioned plants soon after the seeds are ripened, rather than to delay doing so till the spring. These seeds, as a rule, do not germinate till they have been wintered in the soil, therefore, if they are sown now, a season will be saved.

GOETIA.—This annual has long been popular in gardens, and noteworthy on account of the great variety in the colour of the flowers. Probably all the older varieties have been eclipsed by *Schaminii* fl. pl., sometimes known as *Sutton's Double Rose*, which I have cultivated with much pleasure during the past four or five years. The flowers of this kind are a delicate shade of pink, and the beds at Tynningham in which they are planted promise this year to be the finest in the garden. Other varieties differing in colour have been distributed by the nurserymen, and of these a very charming form is *Sutton's Double Mauve*. The colour is much the same as that of the Common Mallow, and will especially appeal to those who delight in what are termed apt shades. It is equally if not more robust than *Schaminii*, of which it is apparently a colour sport. In habit, it is quite distinct from those of which *Lady Albemarle* is a type, the flowers being disposed on long, slender stems in the way of *G. rubicunda*.

SWEET PEAS.—Sweet Peas have been forming seed-pods in great numbers during the past

week, and the removal of these has become a necessity. If flowers are not specially wanted, it is worth while to pick them as well as the pods, as this will rest the energies of the plants, and enable them to overcome the tendency to form pods. The haulm is growing very fast, and unless very tall sticks have been inserted, it will be necessary to introduce tall stakes—Larch poles, with the bark on, are suitable—and stretch string or, better still, wires from pole to pole at suitable heights. The variety *Dazzler* was recently mentioned in the *Gardeners' Chronicle* on account of its glowing colour; but *Thomas Stevenson* is even finer, and eclipses all of the well-known gorgeous type. Messrs. Dobbie distributed for trial seeds of a variety with double standards. This proves to be a fine selection of the pink and apricot varieties, the names of which are so numerous. The weather has been very trying for Sweet Peas, as well as for many other flowers, but seldom have the colours been so well defined.

GENERAL WORK.—The budding of Roses should be finished at the earliest moment, and the later growths of Carnations layered as soon as convenient. Where gravel paths are hoed, the hoe should be used to kill any seedling weeds which are apt to appear about this date. The grass at the edges of verges and flower-beds will for some weeks to come grow more rapidly than hitherto, and will need cutting at short intervals. Train in young shoots of climbers before they get twisted and irrecoverably bent: the older shoots may be removed entirely where this can be done without it being noticeable.

THE FRENCH GARDEN.

By PAUL AQUATAS.

OLD MANURE BEDS.—All inter-crops grown between Celery and Cauliflowers must now be marketed, as the Celery and Cauliflowers require the additional room. Carrots should be thinned, wherever possible, in order to promote a sturdy growth. When some of the beds are cleared of their crops they should be broken up to provide a supply of black soil for the early sowings in autumn.

MELONS.—The Melon crops will require little attention beyond watering the last batches, where the fruits are still swelling, and the picking and packing of the fruits. Where cloches have been employed for covering Melons, frames and lights may be substituted, as there are now plenty of these available.

CUCUMBERS.—Fruits are now plentiful and must be cut at least three times weekly, as they soon turn a yellow colour. As the roots have now reached the manure, watering need not be done so frequently. Ventilation should be afforded day and night, but the lights must never be removed, as the young fruits are liable to damp off in chilly weather.

AUTUMN CROPS.—The ground selected for growing the transplanted *Endive* should be lightly dug. Whenever convenient, preferably in rainy weather, the plants should be set out in rows at a distance of 1 foot apart each way. It is not too late to make a further planting of Celery, and this may be necessary as the drought has somewhat injured the earlier batches.

CHICORY.—The oldest leaves of *Witloof Chicory* should be broken away by the hand. A watering forthrightly with liquid manure will be beneficial to the growth of the plants.

SPINACH.—A sowing of Spinach should be made in drills drawn 1 foot apart. *Viroflay Giant* is a good variety for winter use. The seeds should be inserted in three batches, allowing a fortnight to elapse between each sowing. This practice will not only secure a succession, but be a safeguard against failure, as often the plants of the first batch damp off in mild winters.

SPRING ONIONS.—The main crop of Spring Onions should be sown in well-drained soil. The seeds should be sown broadcast and covered with a good mulching of decayed manure.

STRAWBERRIES.—The runners should now be set in a richly-manured bed at a distance of 18 inches apart. These runners will form the plants for forcing in 1913. The advantage of this method is that blind plants may be detected and destroyed at the following flowering season.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only, or typewritten, and all entries in the week as possible and be signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for losses or damage.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, and to send such notices as soon as possible to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, AUGUST 5
Riley's Secret Pea Show. Soc. Française d'Hort. de Londres meet.

MONDAY, AUGUST 7—
Bank Holiday. Swanage Fl. Sh.

TUESDAY, AUGUST 8—
Leicester Fl. Sh. (2 days). Knaresborough and District Fl. Sh. Clevedon Fl. Sh. (2 days).

WEDNESDAY, AUGUST 9—
Brecon Fl. Sh.

THURSDAY, AUGUST 10—
Taunton Deane Fl. Sh. Soc. Nationale d'Hort. de France (Paris) Exh. Prendergast Fl. Sh. at Havfordwest. Border Sweet Pea Soc. Sh. at Coldstream.

SATURDAY, AUGUST 12—
Green and District Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—62°.

ACTUAL TEMPERATURES.—
LONDON.—Wednesday, August 2 (6 P.M.): Max. 79°; Min. 59°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, August 3 (10 A.M.): Bar. 30.2°; Temp. 72°; Weather—Overcast.

PROVINCES.—Wednesday, August 2: Max. 76° Cambridge; Min. 56° Ireland S.W.

A Horticultural Museum.

All concerned in the advancement of horticulture will agree that a well-planned and equipped horticultural museum would be of the greatest value. The organisation of such a museum would, it is true, be a matter of no small difficulty. It would require ample space and the application of the best methods for the preservation and display of specimens. More than this, it would need a not-inconsiderable endowment, and also zealous oversight, lest it should become a sort of horticultural curiosity shop in which all sorts of things, good, bad and indifferent, were stored with magpie-like indiscriminateness. Though the difficulties are great, they are not insuperable, and the advantages that would be derived from good collections of cultivated plants—illustrating their time, place, and mode of origin, their range of variation, and method of propagation—would be extraordinarily instructive. We can imagine nothing which which would be more calculated to give a great impetus to scientific horticulture, nor nothing which would be of so much service to the investigator. The shows of the Royal Horticultural Society provide in this country, it is true, the best of all museums. But, by the nature of the case, they are transitory, and the permanent records of horticultural progress—records in which intermediate stages are dis-

played at one and the same moment to the eye—are, at present, but fragmentary. As in Nature we see but the last phases of progressive development of living things in those which flourish to-day, and needs must dig in the earth to find traces of the forms of life of the past, so we see admirably displayed at the nurseryman's and florist's establishments, at the great shows, and in private gardens, the latest products of the horticulturist's skill, but must turn to the columns of horticultural journals to get, at best, but an imperfect idea of the stages by which these present, proved results have been produced.

This age has realised, under the stimulus of Darwin's teaching, that it is one of the foremost duties of mankind to record its own progress, and to preserve such of the past records as are extant. That this should be done, accords with modern views that one generation is the trustee of the succeeding generations, and owes to the future the debt of preserving a record of this present.

The horticultural museum we contemplate—a counsel of perfection perhaps—is not so much one in which pathological specimens are preserved, noxious insects, fungi and the like—these things could be, and to some extent are, dealt with in local institutions. It is rather the function of a great central museum, such as we have in mind, to display the progress and change which have overtaken, and are overtaking, cultivated plants.

Anyone who has attempted to form a mental picture of the course of evolution of any of our cultivated plants knows how difficult is the task. The raiser of a given race of plants knows much, often far more than appears in the books, but much of this knowledge perishes with him—"and all the rest forget for which he toiled." Descriptions and drawings, such as we possess, help to fill the gaps in our knowledge; but how much more thoroughly might these gaps be filled if we could preserve the actual specimens with something of their individual form and colour! The material difficulties of preserving true colours of flowers are not overwhelmingly great—at least in many cases. By drying in sawdust or sand, at moderately high temperatures, and also by other methods, it is possible to preserve, for example, the yellow of the Crocus, the blue and red colours of *Salvia*, and some, at all events, of the many tints of the Chinese Primrose. Moreover, we have now at our command processes of colour photography which give admirably faithful pictures of natural objects, and this art would serve to supplement the natural specimens.

Here, in the foundation of a horticultural museum, the pious benefactor has an opportunity to do a notable service to horticulture and also to biological science; and, having regard to the way in which projects, seemingly remote from realisation or even visionary, have of getting themselves carried into effect, we do not despair of the realisation of the idea of such a horticultural museum as we have indicated.

R.H.S. SCHOOL OF HORTICULTURE AT WISLEY.—The next two years course will commence on September 25. There are six vacancies, and intending students are requested to communicate with the Secretary of the Society, R.H.S. Hall, Vincent Square, Westminster, S.W., as quickly as possible. Young men between 16 and 22 years of age are eligible. The only payment to the Society is five guineas as an entrance fee. W. Wilks, Secretary.

THE "DAILY MAIL" SWEET PEA COMPETITION.—As is generally known the proprietors of the *Daily Mail* offered in the spring of this year £1,000 for the best bunch of Sweet Peas, to consist of 12 spikes, not fewer than four varieties. A 2nd prize of £100, a 3rd of £50, 100 silver medals, and 900 bronze medals were also offered. Such a prize as £1,000 for a single bunch of flowers is, it is needless to say, unprecedented in the annals of horticulture—not for its magnitude only, but also for the comparatively simple and easily-grown nature of the exhibit required. The result was that entries approaching 40,000 were received. The competition was decided on Friday last, and the flowers had all to reach the Crystal Palace by parcel post. This condition, which seemed a hard one to many, placed competitors on a footing approaching equality. The plan adopted as to judging was as follows. The boxes were delivered by the postal authorities to a marquee erected for the purpose. The boxes were opened by a number of boy scouts, and examined at once by a small committee of judges, who decided if the flowers were fit to go forward. Thousands of the bunches were dried up, or much too small to be considered, whilst many more were not in conformity with requirements. Only 12 spikes were to be sent; some forwarded only three or four; others as many as 100; whilst several sent bunches of one variety only. The result of this preliminary examination was that some 10,000 bunches were brought to the notice of the 10 judges. These gentlemen commenced work at 8 a.m. on Friday, and, working in pairs, selected the best from each table. One hundred and three bunches were in this way picked out and put on a separate table. From this lot the first three were chosen, and the final decision was arrived at by a vote of 6 to 4, the 1st prize of £1,000 being awarded to Mrs. FRASER, The Manse, Sprouton, Kelso; the 2nd prize of £100 to Mr. H. W. RICHARDS, Ryde, Isle of Wight; and the 3rd prize of £50 to Rev. D. D. FRASER, The Manse, Sprouton, Kelso. The flowers which were awarded the 1st prize were large, and bore evidence of excellent culture. Moreover, they were all four-bloom sprays, the stalks being about 16 inches long. John Ingman, Mrs. Hugh Dickson, Arthur Unwin, King Edward Spencer, and a dark sort, like Nubian or Tom Bolton, were the varieties. Those to which the 2nd prize was awarded had not the same length of stem as the 1st, and several of the spikes had only three flowers. The judges were MESSRS. THOMAS STEVENSON, ANDREW IRELAND, A. G. STARK, SILAS COLE, J. GANTLEY, J. H. MILLARD, W. P. WRIGHT, HORACE WRIGHT, CHARLES CURTIS, and HARRY FOSTER. Those voting in the majority comprised all the practical growers. Lord NORTHCLIFFE and his colleagues are to be congratulated on creating by this exhibition such keen and intense interest in Sweet Pea culture. Mr. BEECH THOMAS has been responsible for most of the arrangements in connection with the competition, and he discharged his heavy task most efficiently.

CARDIFF FLOWER SHOW.—We are informed that the award of a Silver-gilt Medal made to Messrs. ED. WEBB & SONS' exhibit at the Cardiff Show was subsequently altered by the committee to a Gold Medal.

FRUIT CROPS IN GERMANY, FRANCE, AND BELGIUM.—The Board of Agriculture and Fisheries have received the following reports from His Majesty's Consuls on the condition of the fruit crops in certain districts in Germany, France and Belgium.

In the Pomeranian district of Germany the prospects of the Plum crop are not favourable; the crop is estimated to be below the average, with a probable yield of 30,000 to 40,000 cwts.

were sent to Hull via Hamburg in 1910 and the preceding years.

In the Hamburg district a large crop of early Pears is expected, but late Pears promise only a medium crop.

In North Germany there is no prospect of a very heavy crop of Apples, and in Austria there is only a small harvest, while in Holland and Italy there is a probability of heavy crops. A rich and plentiful crop of early Plums is ex-

pected, according to present conditions, to be rather better than the average.

Reports from France show that Plums will give a very abundant yield in all parts. Apples are plentiful, Pears promise an abundant crop, Nuts are abundant, Cherries fairly abundant, Peaches promise only half an average yield, and Apricots are very scarce.

In the Honfleur district Plums are a very small crop, especially Greengages. Dessert Pears promise only a quarter of the usual crop, but Apples are plentiful, and all kinds of Nuts are abundant.

Regarding Belgium, Apples in the provinces of Brabant, Hainaut and Limbourg are generally scarce. In the provinces of Liège, Namur and Luxembourg the unusual heat in the early part of May had a prejudicial effect, except in the valley of the Meuse, where the crop will be an abundant one. In the provinces of Antwerp and the two Flanders the prospects of a good crop are favourable. In the provinces of Liège, Namur and Luxembourg Pears are fairly plentiful, and in most districts the crop will be above the average. In the provinces of Brabant, Hainaut and Limbourg Plums are plentiful, but the trees are attacked by aphids, and the crops will consequently suffer. In the valley of the Meuse Plums are plentiful, but elsewhere in the provinces of Liège, Namur and Luxembourg the crops will be about average. In the provinces of Antwerp and the two Flanders the Plum trees are well laden, and the prospects are good.

EUCALYPTUS.—Mr. J. H. MAIDEN's *Critical Revision of the Genus Eucalyptus*, of which the first part was issued in 1903, has reached the 12th part and the 59th species. The species described and figured in Part XII. are *E. Ravetiana*, *E. crebra*, *E. Staigeriana*, *E. melanophloia*, *E. pruinosa*, *E. Smithii*, *E. Naudiniana*, *E. sideroxylon*, *E. leucoxylen*, and *E. Caleyi*. As we have said before, in notices of previous parts, Mr. MAIDEN has spared himself no trouble in pursuing his investigations to all possible limits, and in this part he clears up all doubts respecting the presence of a species of *Eucalyptus* in the Philippine Islands, and its identity. He had previously contributed the particulars of this discovery to the *Proceedings of the U.S. National Museum*, vol. xxvi.; but as that publication is not generally accessible, the facts may be repeated here. Mr. WILLIAM RICH, a botanist attached to WILKES'S U.S. Expedition, collected in Mindanao imperfect specimens of a tree which he named *Eucalyptus multiflora* (a name previously employed in the genus), and A. GRAY, in the *Botany of the Expedition*, published the name, with such description as he could give. Mr. MAIDEN has been able to examine the specimen, and has identified it with *E. Naudiniana*, F. Muell., a species otherwise only known to occur in New Pomerania (New Britain), in the Bismarck Archipelago, where it is abundant. Mr. MAIDEN has received further—though not perfect—specimens from Mindanao, and it is highly interesting to have the record of this Australian element in the Philippine flora confirmed. Our latest news of Mr. MAIDEN is that he was slowly recovering from a severe surgical operation. We hope that he is by now completely restored to health and able to resume his valuable studies.



Mussaenda erythrophylla (from a photograph).

FIG. 43. MUSSAENDA ERYTHROPHYLLA: FLOWERS PALE YELLOW WITH CRIMSON DISC: THE ENLARGED SEPAL CARMINE VERMILION. (R.H.S. Award of Merit on Tuesday last, see p. 95.)

The prospects of the Plum crop in Silesia are good. The Pear crop is estimated to be about one-quarter below the average yield. The crop of Apples will be poor; it is estimated that about 30,000 cwts. will be placed on the market. An average crop of Bilberries is reported. These, although gathered near Stettin, are forwarded to Hamburg for shipment, and large quantities

exported, but only a good medium crop of late Plums.

In the Berlin district Apples and Pears are expected to be below the average in Brandenburg and Silesia, and considerably below in the province of Saxony. An average crop of Plums is expected on the whole, though Greengages and Mirabelles will be somewhat less than usual.

THE KING OF BULGARIA AND PLANT COLLECTORS.—While on a recent tour in the Balkans, Mr. C. F. BAIL, of Glasnevin Botanic Gardens, and Mr. HERBERT COWLEY, of *The Garden*, were presented to His Majesty the King of Bulgaria, who placed at their disposal a special railway carriage for travelling throughout the country and guides to accompany them over mountainous districts. Some interesting plants were collected on the Rhodope Alps and in the neighbourhood of the Shipka Pass, and these have been sent to the Glasnevin Botanic Gardens. When crossing the Shipka Pass the party discovered large masses of *Haberlea rhodopensis* flowering profusely on shady banks. We are informed that among other plants noted were *Dianthus microlepis* and its pure white variety, *Primula minima*, *P. frondosa*, *P. deorum*, *Lilium Martagon*, *Pinus Peuke*, *Saxifraga sancta*, and other species. *Gentiana asclepiadea*, *G. lutea* and *G. verna*, *Soldanella pusilla*, *S. montana*, *Aquilegia aureum*, *Geum coccineum*, and *Campanula velutina*.

THE MUSTARD BEETLE.—The Board of Agriculture and Fisheries have received information that the Mustard beetle (*Phædon betule*) is doing much damage in some districts this season. They desire therefore to direct attention to measures which may be adopted to combat this pest. The beetles hibernate in various sheltered places, such as the Mustard stubble, in the hollow stems of other plants, in the neighbourhood of the food plants, and in crevices of many kinds. Eggs are laid in spring and summer, and both grubs and beetles feed on the growing plants. Pupation of the grubs takes place in the soil. The beetles may be attacked (a) by dislodging and trapping them by dragging tarred sacking over the young plants when the beetles are observed upon them; and (b) by spraying the infested crop with arsenate of lead, which may be obtained ready for use in the paste form, and may be employed at the rate of 4 lbs. of the paste to 100 gallons of water. It has been observed that later in the year the beetles at times migrate in great numbers to other fields, and when this takes place a shallow trench should be dug across the path of the migrating swarm. If the trench is kept tarred many beetles will be caught, notwithstanding the fact that they have wings. After infestation the stubble may be burnt over before ploughing in order to destroy hibernating beetles.

EARLY FRUIT AND VEGETABLES FROM ITALY.—According to the *Journal* of the Royal Society of Arts, efforts are being made by shippers in Naples and Palermo to obtain a subvention from the Italian Government, in order to establish a line of quick steamers from Naples, touching at Palermo, to London. These steamers, which would be specially designed for the conveyance of early fruit and vegetables from Southern Italy and Sicily for the London market, would be provided with every convenience for the rapid loading and discharge of their cargoes, and for carrying them to their destination in perfect condition.

THE LOGANIACEÆ OF ASIA.—Under the title "Contribution à l'étude des Loganiacées Asiatiques de l'Herbier du Muséum de Paris," Professor PAUL DOR (*Bull. Soc. Bot., France*, 4me series vol. x.) describes a number of new species mostly from Eastern Asia. They include eight species of *Strychnos*, mostly collected and named in manuscript by the late Dr. PIERRE. Professor DOR classifies the species in three groups, having short, intermediate or long-tubed corollas. *S. Gauthieriana*, Pierre, from Tonking, is used as a remedy in cases of plague, and other species are said to be used medicinally, though

no particulars are given. Professor DOR still records *Buddleia curviflora* from Japan, although, as explained in the *Gardeners' Chronicle*, May 11, 1889, p. 595, and elsewhere, the Japanese plant is a very distinct species, to which the name *japonica* has been given. The genuine *B. curviflora* is only known from the Lachu Archipelago, is not in cultivation, and is only represented in British Herbaria, so far as we know, by the original specimen collected by BECHY and preserved in the Kew Herbarium. There are several seminal varieties in cultivation recorded as the issue of *B. japonica* (*B. curviflora*, Hort.), among them *B. carnea* (*Revue Horticole*, 1879, p. 90, with a coloured plate), which is represented with lilac rather than flesh-coloured flowers.

THE NEW ZEALAND FLORA.—Mr. T. F. CHEESEMAM, the author of the excellent *Manual of the New Zealand Flora*, which appeared in 1906, continues to publish from time to time additions to the flora, both in new species and extension of areas. Among new species are *Olearia pachyphylla*, *Raoulia gibbsii*, and *Myosotis Antonii*. The discovery of *Leucopogon Richei* on the mainland of New Zealand is interesting. This species has a very wide range in littoral districts in Australia, occurring in all the states of the Commonwealth, and is also present in the Chatham Islands. It was the only Australian plant inhabiting the group that had previously not been met with on the mainland of the Dominion. Mr. CHEESEMAM figures two additional examples of branched trees of the Nikau Palm, *Rhoplostylis sapida*, one with three branches, one with four, in each case springing almost from the same point. Branched specimens of this Palm are, apparently, not very rare. The most remarkable specimen known is one with 11 branches, figured in the *Transactions of the New Zealand Institute*, vol. x., t. 15.

PUBLICATIONS RECEIVED.—*The Women's Agricultural and Horticultural International Union Leaflet*. (July.) Price 2d. (London: 64, Lower Sloane Street.)—*Flower Show Fixtures for 1911*, by Austin & McAslan, 69, Mitchell Street, Glasgow. Free on application.—*Journal of The National Poultry Organization Society, Ltd.* (July.) Ed. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd., 23, Paternoster Row, E.C.4)

THE ROSARY.

ROSA HEMISPHERICA.

The interesting note from Mr. W. H. Divers on p. 418 regarding this species and its behaviour in dry weather appears to me to be correct, at least so far as my limited experience with this Rose extends. My plant has received a severe check from the recent excessive drought and has failed to flower, although earlier in the season it looked very promising, and was in splendid health. The plant in my possession seems to be quite at home on a light sandy loam, and although only planted in November last year it has made good growth. I am much interested in all the yellow species of Roses, and have no fewer than 16 of these under observation. I note Mr. Divers says that no other Rose has such a beautiful golden-yellow colour as *R. hemisphaerica*, and I am very anxious to see its flowers on that account. My object in collecting every known species of yellow Rose is two-fold. In the first place, I believe some of them will prove of immense value for breeding purposes, and the second reason is this: Some years ago, in a very old garden in East Lothian, at one time the site of a church under the monks of ancient Newbattle Abbey, I discovered a brilliant yellow single Rose of great beauty. It has been submitted, on several occasions, to eminent and ex-

perienced Rosarians, but none of them can name it. In foliage it closely resembles *R. pimpinellifolia lutea*, but it is a stronger grower and much deeper in colour in the flowers, which are also considerably larger than those of that variety. Everyone who has seen it is struck with its glorious colour, and I wish to identify it if possible, hence my second reason for growing all the yellow species known to cultivation. Mr. Divers says that, on the authority of Nicholson, *R. hemisphaerica* is probably one of our oldest varieties, as it was introduced from the Orient in 1629. I am inclined to doubt Nicholson on this point, as I find him at variance with facts on several matters in connection with the species of Roses. As an example, he says that *R. Ecæ*, the single yellow Rose of Afghanistan, is synonymous with *R. xanthina*. I find these totally different in flower, foliage, and habit. Then, again, as to *R. hemisphaerica*, while Nicholson says it was introduced in 1629, I find it stated on the authority of Professor Crépin, of Brussels, that it was introduced by Hermann in 1762. No doubt the oldest known single yellow Rose we have are *R. lutea* (Austrian yellow), and *R. lutea bicolor* (Austrian copper), both of which were mentioned by Gerard in 1596. In the admirable system of the classification of Roses adopted by Professor Crépin, I observe that he brings *R. hemisphaerica* under the section "Luteæ," this including all the Austrian briars. This eminent authority also considers *R. hemisphaerica* as synonymous with *R. sulphurea* of Aiton (1789), and there is also a double form of this Rose. I have not flowered this form yet, and am unable to say anything as to its merits, but in habit and foliage it resembles the single in every detail. Under Crépin's section "Pimpinellifoliae," which includes all the Pimpinell Rose, and of which our Scotch Burnet Roses are typical examples, there is also a Rose named *Sulphurea*. It is, however, quite distinct in every way from the species of that name under the Austrian briar section in the above noted scheme of classification, but I have not seen its flowers, although I hope to have it sufficiently established to yield these in abundance another season. *R. hemisphaerica* is a native of Persia and Armenia, and seems strongly allied to the Austrian briars. One of the prettiest species in the garden, both in foliage and spines, is *R. hispida* (syn. *lutescens*). Even though the flowers are worthless, which I hope will not prove to be the case, the plant would be valuable for its charming foliage. *Geo. M. Taylor, Mid-Lothian.*

ORLEANS ROSE.

THIS, one of the newest of dwarf Polyantha Roses, was seen by the writer in its native country in large plantations of half an acre or more, and no words can give an idea of the magnificent effect of colour which the plants produced. A bright pink with a suggestion of salmon, foliage light green and very healthy, and, lastly, it does not fade "blue" but white. *Wanderer.*

GARDEN PENTSTEMONS.

THE somewhat comprehensive genus *Pentstemon* contains many beautiful and interesting species suitable for garden purposes. In addition to those employed in the herbaceous border, there are the florists' varieties which have emanated mainly from such species as *P. Cobæa* and *P. Hartwegii*. Apart from their origin, however, this group contains some very fine varieties, and where attention is paid to their cultivation they are capable of producing a fine display. Taken as a whole, the *Pentstemons* are of comparatively easy culture, though one point deserves more than a passing word, and this is the provision of a sufficient depth of good, rich soil. It is unfortunately a rather common occurrence to find some of the most beautiful species struggling for existence in hot, dry positions

that are, to say the least, ill suited to their well-being. Frequently, in the winter, the plants are severely tried by the climatic conditions, and when rains and frosts succeed each other day by day they may be killed outright; for this reason the whole of the stock should not be risked out-of-doors without protection. Frequently, however, plants that have been badly damaged by wet and cold in the winter will, provided a little leaf-mould has been placed over the roots, break quite strongly into growth in the spring, and make as good a show as ever. Inasmuch, however, as the severity or changeableness of a winter is beyond speculation, it will

value pertaining to these *Pentstemons* as a whole, they are not only very profuse in their flowering, but where a good selection of the species exists, together with an assortment of the florists' bedding kinds, our gardens may be brightened with them from June till October, and even later when severe frosts are absent. In order to ensure ordinary success with the plants thorough drainage of the soil is of primary importance, and these, in common with numbers of other Californian plants, suffer more from excessive moisture at the roots than from the coldness of our winters. When grown as rock plants it must be remembered that they need a richer treatment

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE HORTICULTURAL TRADES AND THE LAND UNION.—Dissatisfaction amongst horticulturists has been growing for some time past with regard to the additional burdens thrown upon the trade by recent legislation. It is now realised that Undeveloped Land Duty on the difference between the agricultural value and the hypothetical value of the land, for building or for any other purposes, although levied at one half-penny in the £ on such difference in the capital value, represents in effect a tax of nearly 1s. in the £ on the rental value. The feeling of uneasiness has been greatly intensified by the sympathetic reception given recently by the Prime Minister and the Chancellor of the Exchequer to a petition signed by 172 members of Parliament, urging that increased taxation should be thrown upon land values to the extent of many millions of pounds a year. The matter has now culminated in the formation of a special committee of those interested in horticulture, with a view to securing redress and resisting further impositions. The list of members comprises such well-known names as G. Bunyard, W. Bull, R. Cobley, H. E. Honnor, Geo. Monro, R. Piper, C. E. Pearson, S. Pickering, T. A. Rivers, J. Rochford, W. B. Randall, E. Sherwood, H. J. Veitch, J. G. Veitch, N. Sherwood, H. Morgan Veitch, A. Watkins, W. Poupard, Wm. Sams, B. Hurst, J. Sweet, H. O. Larsen, E. Rochford, R. W. Wallace and W. R. Pennell. Arrangements have been completed by this committee securing the assistance of the Land Union with its organisation of 140 branches throughout the country. Those anxious to support the committee by contributing to the campaign fund, or by offering their personal assistance as speakers or canvassers, should communicate with the Secretary, Horticultural Advisory Committee, Land Union, St. Stephen's House, Westminster, London. C. H. Kenderdine, Secretary of the Land Union.

THE DESTRUCTION OF CHARLOCK.—On this estate spraying for the destruction of Charlock has been practised with very gratifying success for several years past, and if W. P. R. were to give Strawson's preparation a trial, according to directions given, he would admit the efficacy of it. I myself saw the benefits of it, when first tried on a field of Corn here some years ago, and spraying has been practised annually with conspicuous success. One convincing point as to its merits is that the tenant farmers on this estate have taken up the spraying since it was first tried on the home farm, and these practical farmers do not waste money or time on worthless methods. As with Mr. Molyneux, Charlock is a pest in this locality. Some 10 years ago, a railway embankment was formed here, and this is usually a mass of golden Charlock during early summer, but none is seen in the cornfield adjoining, and this is due entirely to annual sprayings. Wilmet H. Gates, Rotherfield Park Gardens, Alton, Hants.

RED SPIDER ATTACKING VINES.—I have read with interest the remarks of your correspondents on this subject. I agree with Mr. Thatcher (see p. 7) that vine borders, especially at the surface, are kept much too dry during the early part of the season. In all my experience I have never had a viney attacked with red spider. During my six years' service at Euston Hall, Thetford, under the veteran grower Mr. Low, we had three vineries, two built of iron and one of wood. The two former were difficult to manage during the early part of the season, as the temperature quickly became very high through the sun's rays, necessitating constant attention to ventilating. Mr. Low was a great advocate of having every inch of ground well moistened with water about mid-day. At closing time the bare spaces were damped again, which made it impossible for red spider to gain a footing. I have seen the pipes sulphured to check red spider, but I am of the opinion that excessive fire-heat and dry atmosphere are the causes of this pest appearing. If the parts near to the hot-water pipes are not damped, red spider will soon travel up the vine rods. E. Hart, Brockley House, Twyford, Winchester.



(Photograph by Wyntham Fitzherbert.)

FIG. 14.—PENTSTEMON CAMPANULATUS (WHITE VARIETY).

be best to keep a reserve of at least all the rarer and more tender kinds under glass.

Seeds of several of the species are easily obtained, and these, if sown as soon as they are ripe, will germinate freely. Plants are also easily raised from cuttings inserted in sandy soil in a frame or under a handlight about August, when suitable pieces of the half-ripened shoots root readily. Plants raised in this manner will, if kept in a cold house or frame through the winter, flower well in the following year. It is worthy of note, and the fact is perhaps insufficiently recognised, that, apart from the general

than Alpines, and constant moisture at the roots, which is generally best secured by burying large stones around them. The plants enjoy a full exposure to sunlight.

According to Nicholson's *Dictionary of Gardening*, *Pentstemon campanulatus* bears flowers varying in shades of pink, dark purple, and violet. I have two plants which were given me a few years ago by Canon Ellacombe, of Bitton. One has flowers of a rich crimson and the other, which is shown in fig. 44, is pure white. *P. campanulatus* is a native of Mexico. Wyntham Fitzherbert.

NEW SYSTEM OF WATERING PLANTS OUT-OF-DOORS.—During the recent dry weather I have extended the scope of an experiment I made on a small scale last year. My garden is on the slope of a hill, on the sandy heath of Dorsetshire, but I have succeeded in growing excellent Roses, flowering shrubs, and a variety of creepers on my pergolas, including an assortment of vines. I do not allow unused flower-pots to lumber my potting shed, but sink them in the ground to a depth of 4 inches, and, when possible, at about 8 inches to the south of the stem of the plant, as being the direction in which the roots run, but above all the plants or shrubs on sloping ground, so that the water gravitates to the roots. In my Rose-bed I place one 8½-inch pot to four or six or more Roses, according to their size. By this system the work of watering is done very quickly, the effect is far more lasting, and water is not wasted. Throughout all this dry weather I have not lost one single plant. *A Lover of Roses.*

THUNDERSTORM AT KILKENNY CASTLE.—A violent thunderstorm, accompanied by a gale of wind and unusually heavy rains was experienced here on Saturday, July 29. The rainfall between the hours of 4.30 p.m. and 7 p.m. amounted to 2.14 inches, and for the 24 hours to 2.21 inches, which is the heaviest fall recorded here in one day since the meteorological records were first kept in 1884. Fortunately, no serious damage was done to the crops. *E. Sutton, The Gardens, Kilkenny Castle.*

ROSE BILLARD ET BARRE.—Mr. Chester Parker, on p. 62, states that this Rose has been in cultivation for over 20 years, and is still less popular than it ought to be. He has made an error in the date, for the variety was sent out by Pernet Ducher in 1896, and was offered in catalogues in England a year afterwards. As it would be a year or two later before it was under general cultivation, 10 years would be more accurate than the period stated by Mr. Parker. It is never likely to become a popular Rose, and has long been superseded by other and better varieties. Your correspondent recommends it as a standard or half-standard, but, as Billard et Barré is pre-eminently a pillar Rose, it is not a desirable standard variety in any form; indeed, when such sorts as Mrs. Peter Blair and Harry Kirk are available, it need not be considered. As a climber, its flowering habit is against it, and Mme. Hector Leuillot is superior in every way. Billard et Barré has a bad habit of throwing three blooms to the truss, the centre one being withered and over before the two side ones are showing colour. *Geo. M. Taylor, Midlothian.*

THE FLOWERS OF CHAUCER.—I have read with interest Canon Ellacombe's remarks on the flowers of Chaucer. It may be of interest to state that growing in the pleasure grounds here is an old Oak with the following lines attached to it:—"Lo the Oke, that hath so long a nourishing Fro' the time that it gineth first to spring, And hath so long a life, as we may see, Yet at the last wasted is the tree." Chaucer. No doubt the tree was an old one in Chaucer's time, as it appears to be many hundreds of years old. It is in a slanting position and so hollow that one may easily get inside. The tree on one side appears to be dead, whilst the other side is quite green and fresh. About 4 feet from the ground the trunk measures 16 feet in circumference. *Frank Spillard, Parham Park Gardens, Pulborough.*

EUROPEAN NURSERY CONDITIONS (see p. 46).—Referring to the extract from the *Farmers' Bulletin* (U.S.A.), I may say my association has been in communication and had a deputation before the Board of Agriculture on the subject of nursery inspection. We were unable to make arrangements for a regular inspection of nurseries on the lines laid down in the American Quarantine Bill, the chief difficulty in the way being that of the expense, but I think that no difficulty will be experienced by those firms which regularly trade with the U.S.A., as the Board has in these cases, where it has been properly applied to, sent down one of its own inspectors to go through the nursery and give the necessary certificate, when the conditions justified it. *Chas. E. Pearson, Secretary of the Horticultural Trades Association of Great Britain and Ireland.*

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 1.—The usual fortnightly meeting was held on Tuesday last in the Society's hall, Vincent Square, Westminster. The exhibition was one of the smallest of the year, and the attendance also was meagre.

Orchids were well represented, and included the best exhibit at the meeting, a group of *Disa grandiflora* shown by Mrs. BISCHOFFSHEIM. Two Awards of Merit were granted by the ORCHID COMMITTEE, and Mr. ALEXANDER received a Cultural Commendation for a magnificent specimen of *Phalenopsis violacea*.

The FLORAL COMMITTEE granted five Awards of Merit. The principal groups in this section were of Phloxes, Delphiniums, Ferns, Gladioli, Cannas, and Gloxinias.

Exhibits before the FRUIT AND VEGETABLE COMMITTEE were unimportant, but they included some magnificent yellow Tomatoes, shown by Mr. BECKETT, for which a Cultural Commendation was awarded. Potato "Arduithie Early" received an Award of Merit after trial at Wisley.

Floral Committee.

Present: Messrs. W. Marshall and H. B. May (Chairman); and Messrs. W. Bain, C. T. Drury, John Green, G. Reuthe, Wm. J. James, J. W. Barr, W. J. Bean, C. Blick, Wm. Howe, J. F. McLeod, John Dickson, Chas. Dixon, W. Cuthbertson, Chas. E. Shea, Chas. E. Pearson, W. P. Thomson, E. H. Jenkins, E. A. Bowles, Geo. Gordon, J. Jennings, Jas. Hudson, T. W. Turner, Walter T. Ware, and Arthur Turner.

Messrs. JAS. VEITCH & SONS, LTD., Chelsea, arranged a semi-circular group of the herbaceous *Thalictrum dipterocarpum* on the ground and a collection of Cannas with standard *Plumbagos*, *Begonia Lucerna*, *Mimosa pudica*, *Exacum maranthum*, *Schubertia grandiflora*, *Solanum Wendlandii*, *Paulinia thalictrifolia*, &c., on tabling. The Cannas included Oscar Dannecker, R. Wallace, Duke Ernst, J. B. van der Schoot, and Terra Cotta. The vigour of the beautiful blue *Thalictrums*, some of which were 10 feet high, was astonishing. In their Chinese home the plants attain a height of about 6 feet. The graceful habit and delicate colouring of the flowers places the species in the front rank of summer-flowering hardy herbaceous plants. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, staged a collection of Ferns with batches of *Campanula isophylla* *superba*, *alba* and *Mayi* and *Cissus discolor*. The best of the Ferns were the varieties of *Davallia tenuifolia*, including *Burkei* (especially vigorous and good), *Veitchii* and *stricta*. Other interesting Ferns were *Adiantum micropinnulum*, *Todea barbara*, *Adiantum Veitchianum*, *Bechnum corcovandense* and *Lomaria discolor*. (Silver Flora Medal.)

The Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett), in addition to two new Chinese shrubs, both of which secured Awards of Merit, exhibited a collection of 48 varieties of bedding Verbenas. Most of the varieties shown were of French origin, but the best was the one named after Miss Willmott. Other good sorts were *Rubis*, *King of Scarlet*, *A. de Lord* (blue), and some unnamed red seedlings.

Messrs. JAMES CARTER & CO., Raynes Park, erected a circular, raised group of Gloxinias. The plants had fine flowers, with a wide range of colour, and were raised from seed sown on January 3 last. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, showed a collection of Cannas, relieved with plants of *Asparagus Sprengeri* and *Grevillea robusta*. The most showy varieties of Cannas included *Mephisto* (crimson), *President Meyer* (scarlet), *Garam* (cardinal, especially good), *J. Uhl* and *H. von Otrante* (yellow), *Frau Daisy Hultsch* and *Betsy Ross* (rose), *Hesperide* and *Carl Cropp* (orange), and *J. B. van der Schoot* and *R. Wallace* (spotted). (Silver Banksian Medal.)

The TULLY NURSERY CO., Kildare, Ireland, displayed one of the largest and most decorative groups of flowers in their collection of Gladioli, which were arranged in batches of salmon, scarlet and salmon-pink and blue varieties. (Silver Flora Medal.)

Messrs. H. HOMAN & SONS, Noordwijk, Holland, staged a collection of Gladioli, mostly of *gandavensis* and *Childsii* varieties, but with a few of the *Lemoinei* type. The spikes were not large, but the blossoms exhibited unusual clearness and range of colour. *Bronze King*, *Prince of Orange*, *Snow Queen*, *Primrose Queen*, *Yellow Gem*, *Glory of Noordwijk* and *Dream*, with some unnamed white seedlings are a selection of the best varieties.

Mr. G. KOIZUMI, 35, Bessborough Gardens, London, arranged an interesting collection of dwarf Japanese Conifers.

Messrs. WEBB & BRAND, The Nurseries, Saffron Walden, showed a collection of named double Hollyhocks on show boards and as cut spikes in vases. The collection showed uniform excellence, but among the more distinct varieties may be mentioned *Amaranth*, *Salmon Queen*, *Olive Chater* (pink), *Bullion*, *Miss Lizzie King* (yellow), *Primrose Queen*, *Apple Blossom*, *alba superba*, *Siena* (white), *Joy* (rose-pink) and *Ruby Queen*. (Bronze Flora Medal.)

Messrs. PAUL & SON, The Old Nurseries, Chesant, staged a collection of Phloxes, but they soon withered in the great heat. *Eugene Danzanvilliers*, *Etna*, *Iris*, *La Neige*, *Le Mahdi* and *Siebold* were conspicuous varieties.

Mr. J. BOX, Lindfield Nurseries, Sussex, showed a good collection of Phloxes, which were in a fresher condition than other exhibits of this subject. Dr. Konigshofer was a new brilliant scarlet variety. General van Bentz and Baron von Deden were fine salmon-rose varieties. *Lindfield Beauty*, both for quality and colour, was the best pink sort; it is better known as *Elizabeth Campbell*. The finest white varieties were *Frau Ant. Buchner* and *Frieiraulein von Lassberg*. A few Gladioli were also shown by this firm, including the soft pink *America*, which was effectively staged with *Prunus Pissardi*, and *Baron Hulot* and other blue *Lemoinei* hybrids, *Delphiniums Moerheimii*, *Persimmon* and *Lamaritin* were also shown well. (Silver Flora Medal.)

Mr. G. REUTHE, Keston, Kent, staged an interesting and varied collection of hardy-flowering plants. Some of the less commonly seen specimens were *Rhododendron chrysanthum*, *Eucryphia pinnatifolia*, *Lilium philadelphicum*, *Desfontainia spinosa*, *Dryas lanata*, *Mazus Pumilio*, *Phygelius capensis*, *Tamarix hispida* *aristalis* and *Gentiana thibetica*. A batch of grey-leaved plants included *Alopecurus lanatus*, *Achillea argentea*, *A. Kellers*, *Anthemis cinerea*, *Isula candida*, *Salvia candidissima* and *Artemisia stellaria*. (Bronze Flora Medal.)

Messrs. T. S. WARE, Ltd., Feltham, Middlesex, staged a large and showy group of border plants, with a few Alpines in pots. The more interesting plants included *Agapanthus umbellatus*, and its white variety, *Liatris spicata*, *Sedum maximum purpureum*, *Zauscheria californica*, *Origanum pulchellum*, *O. hybridum*, *Nierembergia rivularis* and varieties of *Aconitum* and *Helianthus*. (Bronze Flora Medal.)

Messrs. BAKER'S, Wolverhampton, showed a small but effective batch of *Tunica saxifraga alba plena*, which received an Award of Merit in August, 1909.

AWARDS OF MERIT.

Canna Terra-cotta.—A handsome variety, with very large trusses and smooth petals. The colour is a rich clear orange. Shown by Messrs. JAS. VEITCH & SONS, LTD., Chelsea.

Carnation Mrs. Wharton.—A vigorous-growing border variety. The flowers are full and possess non-bursting calyces, but are deficient in scent. The colour is a rich shade of apricot. Shown by Mr. J. R. BATTY, Skelton Castle, Yorks.

Cornus paucinervis (see fig. 45).—A Chinese dwarf, bushy evergreen, hardy shrub, introduced by Mr. E. H. Wilson and shown as a pot plant 18 inches high but attaining to a height of 5 or 6 feet. The leaves are lanceolate, short stalked, about 2 inches in length and ½ inch in breadth, smooth, but with a number of inconspicuous adpressed hairs. The flowers are creamy-white and occur in numerous flat clusters terminating the branches. The whole corymb being about 3 inches in diameter, and the closely-packed individual flowers ½ inch or less. The plant is described as a new Chinese species in the *Journal of Botany* for 1881.

Itea ilicifolia (see fig. 46).—Another interesting Chinese shrub, raised by Mr. Beckett three years ago from seed sent by Mr. E. H. Wilson. The glossy, leathery leaves, their dark colour, spiny margins and short reddish stalks are all suggestive of the common Holly, but the plant is allied to the Escallonias and gains distinction from its curious pendulous racemes of small greenish flowers. The inflorescence is about 6 inches long and $\frac{1}{2}$ inch in diameter, cylindrical, with the densely-placed flowers which individually are not more than $\frac{1}{4}$ inch across. In China, Mr. Wilson found the shrub growing in full exposure in stony ravines. One of the seedlings has thrived out-of-doors so far at Elstree, and it is hoped that it will prove quite hardy. Both

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Gurney Wilson, J. Charlesworth, Stuart Low, F. J. Hanbury, C. H. Curtis, W. Cobb, W. H. Hatcher, J. E. Shill, A. Dye, H. G. Alexander, W. H. White, J. Wilson Potter, and W. Bolton.

One of the most beautiful and remarkable exhibits of Orchids shown this season was seen in the very fine group of *Disa grandiflora* shown by Mrs. Bischoffsheim, The Warren House, Stanmore, for which a Silver-gilt Flora Medal was awarded and a Cultural Commendation to the grower, Mr. Taylor. The group extended about 35 ft., and was composed of splendidly-grown plants, bearing together over 120 spikes

the very distinct *Catasetum Cliftonii* (see Awards), the pretty red *Dendrobium arachnites*, a fine tuft of the rare Philippine *Bulbophyllum laxiflorum* with many heads of the singular white flowers, *Cirrhopetalum pulchrum*, *C. lepidum*, four plants of the yellow *Spathoglottis Fortunei*, *Dendrobium ciliatum*, the handsomely-variegated *Eulophia maculata*, the dwarf orange-coloured *Lælia monophylla* bearing 12 flowers, *Cynoches chlorochilon*, and *Zygopetalum Roeblingianum*.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), was awarded a Silver Flora Medal for a group of splendidly-grown Orchids. Amongst the more noticeable were *Odontioda Ernest Henry* var. *Fairlawn* (O. Queen Alexandra \times C. Nozliana), with pretty chestnut-red



FIG. 45.—*CORNUS PAUCIFLORA*: FLOWERS CREAMY-WHITE.
(see *Folia*, *Awards of Merit* p. 94)

Photograph by John Gregory.

these were shown by Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett).

Mimosa erythrophylla (see fig. 43).—A Rubiaceae stove plant from tropical Africa, as shown, pruned to a bushy shrub, but occasionally in its native habitat climbing to 30-40 feet. The flowers are tubular, with a spreading disc, pale yellow, centred with crimson, and very fleeting. The plant owes its name and chief interest to the occasional abnormal development of one of the sepals into a large carmine-vermilion blade, very pale beneath. 3-4 inches in length and cordate in shape. The unfolded corolla, the calyx and flower-stalks are densely covered with crimson hairs, and a red sap suffuses the principal veins and hairs of the leaves, giving the plant a curious distinction. Shown by Messrs. JAS. VEITCH & SONS, Chelsea.

of brilliant scarlet and carmine-red flowers, varying much in tint, but all large and showy, the bright-green leaves at the base being in a perfect condition.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), again showed a well-flowered plant of *Lælia Bella* (majalis \times purpurata), with large, rosy-lilac flowers; also the rare *Catasetum apterum*, and the small, pretty *Eria mysorensis*, bearing white flowers with purple and yellow labellums.

Baron BRUNO SCHRÖDER, The Dell, Egham (Orchid grower, Mr. J. E. Shill), showed a fine plant of the white *Mormodes luxata eburnea*, which thrives admirably in the Cattleya house at The Dell.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gattos Park (gr. Mr. Collier), staged an interesting group, in which were several good specimens of

flowers, showing the golden-yellow ground colour in the lip; *Odontoglossum Lambaeanum* var. *G. E. Day*, a charming, pure-white variety, with light-violet markings; *Cattleya Elvina* Herbert Goodson, a bright-rose flower, with a deep, claret-crimson-coloured lip; *Sophr. Lælia* *Cattleya Elissa*, with showy copper-red flowers; and other pretty hybrids. The centre was composed of fine plants of *Cattleya Warszewiczii*, among which a specimen of the white-petalled variety *Frau Melanie Beyrodt* had one of the best flowers yet shown. Others noted were a fine plant of *Cattleya Gaskelliana alba* carrying seven flowers, *Cattleya Rex*, *Anguloa eburnea*, various *Odontoglossums*, including *O. ardentissimum* xanthotes; *Cypripedium Lawrenceanum* Hyacinth, *C. callosum* Sanderae, and *C. Maudslayi*.

E. H. DAVIDSON, Esq., Borlases, Tydford (gr. Mr. F. Cooper), showed a pretty hybrid between

Cattleya granulosa and *C. Gaskelliana*, and *C. Bievreana* (*Gaskelliana alba* × *Schilleriana*), of a delicate bluish-white, with purple veining on the lip.

The Rev. J. CROMBLEHOLME, Clayton-le-Moors, Accrington, showed *Cypripedium Ossulstonii* Crombleholme's variety, a fine, greenish flower, with a snow-white dorsal sepal.

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. J. M. Black), showed a group of pretty hybrids, including a number of specimens of the mauve-tinted *Odontioda Thwaitesii*, the pretty *O. Wilsonii* (white, with violet spotting), and four plants of the large-flowered and handsome *Lælio-Cattleya Rubens*.

W. JAMES, Esq., West Dean Park, Chichester (gr. Mr. W. H. Smith), was awarded a Bronze Banksian Medal for a small group of scarlet *Disa grandiflora*, the plants being well flowered.

group, in the centre of which was a selection of their fine forms of *Cattleya Warscewiczii* of the *Sanderiana* type, varying in tint, but all large and fine in shape. In addition to these there were well-grown plants of *Cattleya Dowiana*, *C. Rex*, various hybrid *Cattleyas*, including *C. Bievreana*, *Cypripedium Neptune* and other hybrids of *C. Rothschildianum*, the fine green and white-flowered *C. Rossetii*, *Bulbophyllum densiflorum* and other species of botanical interest, and the rose and white-flowered *Dendrobium Regium*.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, showed *Cypripedium Franconii* (*callo-Rothschildianum* × *callosum Sanderæ*), a very large hybrid with long and broad petals spotted with chocolate colour. They also exhibited two other showy hybrid *Cypripediums*.

Mr. E. V. Low, Vale Bridge, Laywards Heath,

trilobed form of the labellum, and all exhibit a very large and prominent, raised, triangular, orange-coloured callus. The colour of the flowers varies from greenish to pale yellow, and the lip is slightly fimbriated.

Both Sir JEREMIAH COLMAN and Sir TREVOR LAWRENCE showed forms of this species at the meeting of June 20, and the award on this occasion carries with it a similar award to the plant shown then by Sir TREVOR LAWRENCE.

CULTURAL COMMENDATION

To Mr. H. G. Alexander, Orchid grower to Lieut.-Col. Sir GEORGE L. HOLFORD, for a magnificent plant of *Phalenopsis violacea*, the largest leaf being about 1 foot long and 8 inches broad; of a deep-green colour. The plant bore two flower-spikes, the blooms being white, with violet marking on the inner parts.

Fruit and Vegetable Committee.

Present: A. R. Pearson, Esq. (in the Chair); and Messrs. J. Cheal, C. G. A. Nix, W. Bates, A. Dean, W. Pope, J. Willard, E. Beckett, J. Harrison, G. Wythes, H. Markham, and A. R. Allan.

The Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett), showed two dishes of very fine yellow Tomatoes, named Golden Glow. The Committee recommended a Cultural Commendation.

Dr. J. WALKER, of Wimbledon, exhibited a Cucumber fruit 9 inches long, bearing on its point a small flower.

Messrs. LAXTON BROS., Bedford, showed a seedling Plum, the result of crossing *Early Orleans* with *Early Yellow*. The fruits were not fully ripe, and resembled small fruits of the variety *Victoria*. With them were a few fruits of *Rivers's Early Prolific*, to show that the seedling ripened earlier.

From various sources came seedling *Brambles* or hybrid *Raspberries*, with black and red fruits. As crosses of the *Loganberry* and *Raspberry* are now very numerous, the Committee invited the Council to arrange a trial at Wisley of all the varieties obtainable.

AWARD OF MERIT.

Potato "*Arduthie Early*."—The variety was grown under trial at Wisley, and cooked tubers were placed before the Committee for judging the eating qualities. The tubers were of the *Ashleaf Kidney* form, the flesh being unusually yellow, and was both dry—and pleasant—flavoured. From Mr. SMITH, *Arduthie*.

WISLEY TRIALS.

A Sub-committee of the Fruit Committee visited Wisley recently and made the following recommendations for Awards, which were approved by the Fruit Committee on July 18 and confirmed by the Council.

AWARDS OF MERIT.

King's Ace Berry (KING'S ACRE NURSERY Co., Hereford), (*Peas America*, *The Catthness* (these two from Mr. HOLMES, High Street, Tain), *Eureka*, *King Edward*, *Matchless Marrowfat* (these three from Messrs. SUTTON & SONS, Reading), *Bell's Premier* (Messrs. BELL & BIERSTEDT, Leith), and *The Cottager* (Mr. S. YATES, Manchester).

A Sub-committee of the Floral Committee met at Wisley on July 14, and made the following recommendations for Awards, which were approved by the Floral Committee on July 18, and forwarded to the Council, who granted the same.

AWARDS OF MERIT.

Sweet Peas Helen Pierce, *Marie Corelli*, *Nubian*, and *Queen of Spain Spencer* (all from Messrs. DOBBIE & Co., Edinburgh).

The following varieties were highly commended for garden decoration: *Aurora Spencer*, *Princess Victoria* (Award of Merit, July 9, 1907), *Ivanhoe* (Award of Merit, June 21, 1910), *Elsie Herbert* (Award of Merit, July 9, 1907), *Dorothy Eckford* (Award of Merit, September 2, 1902), *Glady Unwin*, *Isobel Malcolm*, *Mrs. Collier*, *Lady Althorp*, *Asta Ohn*, *Etta Dyke*, *Elfrida Pearson* (Award of Merit, July 19, 1910), *Apple Blossom Spencer*, *Tennant Spencer*, *Dobbie's Sunproof Crimson* (Award of Merit, June 21, 1910), and *Countess Spencer* (true). W. Wilks, Secretary.



[Photograph by John Gregory.]

FIG. 46.—ITEA ILICIFOLIA: FLOWERS GREENISH-YELLOW.

(See Awards of Merit, p. 95.)

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Banksian Medal for an effective group of choice Orchids, amongst the best being their new *Oncidioda Charlesworthii*, with four tall spikes of rosy-mauve flowers; *Mormodes luxata punctata*, having white flowers with purple-spotted centres; the best form of the white *Anguloa eburnea*, with several large blooms; choice forms of *Lælio-Cattleya callistoglossa*, *Bollea celestis*, *Cattleya Warscewiczii*, *Cirrhaea viridi-purpurea*, *Odontoglossum Othello*, and other *Odontoglossums*.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Banksian Medal for an effective

staged a group containing a very handsome and darkly-coloured form of *Cattleya Hardyana*, two plants of *C. Lord Rothschild*, some good specimens of *C. Gaskelliana alba*, also hybrid *Cattleyas* and *Cypripedium Fairrie-Maudie*.

AWARDS.

AWARD OF MERIT.

Catasetum Cliftonii, from Sir JEREMIAH COLMAN, Bart., V.M.H. (gr. Mr. Collier).—The flowers bear in some of the forms a strong resemblance to those of *C. Bungeorthil*, but there are remarkable departures, showing a distinctly

LEAMINGTON AND COUNTY
HORTICULTURAL.

JULY 26-27.—Notwithstanding the very hot, dry weather experienced during the present summer, the third annual flower show, held in the Victoria Park, Leamington, on the above dates, was a pronounced success. Although Roses, Sweet Peas, and hardy herbaceous flowers showed the effects of the long-continued drought, indoor fruit, plant groups and honorary exhibits were praiseworthy.

A comprehensive schedule was provided, no fewer than 160 classes being included. Seven silver challenge cups, valued at 150 guineas, together with liberal cash prizes, were offered, also gold and silver medals. On the opening day of the show a presentation was made to Alderman Holt, J.P. (Deputy Mayor), in recognition of the very great services which he has rendered to the town during the three successive years of his mayoralty. Alderman Holt is the founder and chairman of the Leamington and County Flower Show, and the society's present satisfactory condition is largely due to his tact, perseverance and plodding industry. He is also vice-chairman of the Warwickshire County Committee, working in association with the Royal International Horticultural Exhibition to be held in London next year. The presentation was made by the Mayor (Dr. H. Mason), and it took the form of an order for his portrait to be painted in oil colours. Mrs. Holt was the recipient of an aquamarine necklace set in diamonds and also a silver tea kettle.

PLANTS (OPEN CLASSES).

The principal class in this section was for a group of plants arranged on a ground space of 20 feet by 12 feet. There were three splendid exhibits. The 1st prize of £20 was won by Messrs. JAMES CYPHER & SONS, Cheltenham, whose group was remarkable for the great diversity of richly-coloured *Codiaeums*, *Dracenas*, and profusely-flowered *Orchids*. A rustic arch, clothed with graceful foliage and flowering plants, was the central feature, and in the body of the group *Codiaeums*, *Caladiums*, *Alocasias*, *Aralias*, *Orchids*, *Ferns*, *Ixoras* and tall specimens of *Humea elegans* were artistically arranged. Sir GEORGE H. KENRICK, Whetstone, Edgbaston (gr. Mr. J. V. Macdonald), was placed 2nd with a beautifully-arranged group, somewhat similarly composed to that of Messrs. CYPHER; 3rd, Mr. W. VAUSE, Leamington.

MESSRS. JAMES CYPHER & SONS led in a class for 12 stove and greenhouse plants, of which not fewer than four were to be in flower, in pots not exceeding 10 inches diameter. This exhibit included well-grown plants of *Chironia ixifera*, *Ixora Pilgrimi*, *I. regina*, *Clorodendron Balfouri*, *Draena Albertii*, and *Codiaeum Thompsonii*. 2nd, Mr. W. VAUSE.

Five good exhibits were shown in the class provided for three specimen *Fuchsias*. The 1st prize was gained by J. MURRAY-MOLSWORTH, Esq., Comyn Lodge, Leamington (gr. Mr. S. Bradshaw), whose specimens were very large, well-trained, and profusely flowered. The same exhibitor also showed the best half-dozen tuberous-rooted *Begonias*. His plants were uncommonly well grown and carried an abundance of large, shapely, stout-petalled flowers. The 2nd award went to W. E. MASTERS, Esq., of Warwick. Mrs. RAYSON, Newstead House, Leamington (gr. Mr. W. Jones), won 1st prizes in classes for (1) three *Coleus* plants, (2) six *Gloxinias*, and (3) three *Zonal Pelargoniums*. The well-trained *Coleuses* were beautifully coloured, and both the *Gloxinias* and *Zonal Pelargoniums* were well covered with flowers. Some very handsome table plants were exhibited by Messrs. W. PEMBERTON & SON, Bloxwich, Walsall, who beat seven competitors in a class for six plants. 2nd, Mr. W. VAUSE. J. H. BURLEY, Esq., Brandon Parade, Leamington (gr. Mr. H. J. Finch), showed the best three *Ferns*, having well-cultivated specimens of *Nephrolepis*, *Adiantum*, and an *Asplenium*. The best plant in flower was an *Epacris*, shown by Mr. W. VAUSE. 2nd, Alderman HOLT, Leamington (gr. Mr. J. Fisher), with a rather small but well-flowered plant of *Bougainvillea*. *Cycas revoluta*, exhibited by C. C. SHAW, Esq., Leamington, was pronounced the winning specimen in a class reserved for one foliage plant.

ROSES (OPEN).

Although Roses were not very extensively shown, many of the blooms were of great merit. The most important class was for a decorative exhibit of Roses, arranged on tabling of 12 feet by 4 feet. There were three exhibits. The Silver Challenge Cup, value 25 guineas, offered as 1st prize by J. F. Shaw, Esq., was won by Messrs. GUNN & SONS, Olton, Birmingham, whose flowers were effectively displayed in vases and Bamboo stands. Tall pillars decorated with Dorothy Perkins and Hiawatha formed a very pretty background, and such varieties as the Lyton Rose, Mrs. John Laing, Frau Karl Druschki, Captain Hayward, Richmond, and Melanie Souper were seen to advantage near the front of the group. The 2nd prize was awarded to Mr. J. MATTOCK, New Headington, Oxford, who had a well-arranged collection of good varieties. 3rd, Mr. GEORGE PRINCE, Longworth, Faringdon, Berks. The last-named exhibitor beat four contestants in a class for 24 blooms, distinct. He showed excellent specimens of *Maman Cochet*, *White Maman Cochet*, *Bessie Brown*, *Jonkhoeur*, *J. L. Mock*, *Dean Holt*, and *Glady's Harkness*. 2nd, Messrs. CHAPMAN & COLLY, Leicester, whose blooms of *Bessie Brown*, *Mildred Grant*, and *White Maman Cochet* were meritorious. 3rd, Messrs. HICKS, Wallingford, Berks.

MESSRS. PERKINS & SONS, Coventry, took the lead in a class for 12 Hybrid Perpetuals. Their best flowers were *Mme. Eugene Verdier*, *Horace Vernet*, and *Frau Karl Druschki*. The same exhibitors were awarded the 1st prize in a class for six H.P.'s (one variety). They showed *Gloire de Chedane Guinoisseau* in beautifully fresh condition.

The best 12 Tea Roses were shown by Mr. GEORGE PRINCE, who also had the winning stand of six Tea Roses (one variety).

HARDY HERBACEOUS AND OTHER FLOWERS.

The quality of the flowers exhibited in the principal class, which was for 25 distinct kinds of hardy herbaceous flowers, was below that of a year ago, when several very fine exhibits were made. The leading award, consisting of a Silver Challenge Cup, value 25 guineas, presented by F. A. Chandler, Esq., was won by Messrs. GUNN & SONS, who had a tastefully-arranged collection, which included large bunches of *Phloxes*, *Scabious*, *Campanulas*, *Hollyhocks*, *Centaureas*, *Liatris spicata*, and *Chelone barbata*. F. BOUSKELL, Esq., Nuneaton, was placed 2nd with good examples of *Gaillardias*, *Delphiniums*, *Catananche cerulea*, and *Eryngium amethystinum*. 3rd, Messrs. T. B. GROVE & SON, Sutton Coldfield.

The winning stand of 12 distinct kinds of hardy herbaceous flowers was exhibited by Mr. C. H. HERBERT, Acocks Green, Birmingham, whose examples of *Gaillardias*, *Alistomerias*, and *Scabious* were particularly good. 2nd, Messrs. F. SMITH & CO., Woodbridge.

Mr. W. HARPER, Leamington, won 1st prizes in classes for (1) bouquet for the hand, (2) bridal bouquet, (3) three sprays suitable for a lady, and (4) six bunches of stove and greenhouse flowers, dissimilar. Messrs. PERKINS & SONS, of Coventry, were placed 2nd in the first two classes.

There were only two entries in a class for undressed Carnations, shown with their own foliage and buds; ties or bands around the calyx or paper collars were prohibited. Table space of 8 feet by 4 feet was allotted to each exhibitor. The 1st prize of 5 guineas was secured by Mr. A. F. DETTON, Iver, Bucks., who had flowers of *Pink* and *White Enchantress*, *Victory*, *Winsor*, and others, pleasingly arranged. The 2nd award fell to Messrs. YOUNG & CO., Cheltenham, who showed bold masses of the leading varieties.

The same two exhibitors were placed in a order named in the next class, which was for a dozen varieties of Carnations, in not fewer than six varieties, each vase to contain at least six flowers.

MESSRS. A. R. BROWN, LTD., KING'S NORTON, and Mr. C. H. HERBERT, Acocks Green, were awarded 1st and 2nd prizes respectively in classes for (1) 12 border Carnations, dissimilar, and (2) 12 Carnations, dissimilar.

SWEET PEAS.

A Silver Challenge Cup, value 20 guineas, presented by Alderman Holt, was offered for the best exhibit of Sweet Peas to occupy a space of 80

square feet. There were two exhibits. The 1st prize was won by Mr. T. CROSS, Bury St. Edmunds, who had good-quality flowers, in great variety. 2nd, Messrs. GUNN & SONS, Olton.

Robert Sydenham Limited offered prizes for nine distinct varieties of Sweet Peas. 1st, Mr. A. TAYLOR, Olton; 2nd, Mr. J. RANDALL, Leamington.

Messrs. Webb and Sons' prizes were offered for eight varieties, and here again Mr. A. TAYLOR took the lead, the Rev. J. J. AGAR ELLIS being placed 2nd.

Mr. Henry Eckford's prizes were offered for nine varieties, Mr. I. W. LAMPLOUGH, Leamington, and Mrs. ROGERS, Leamington, winning the 1st and 2nd prizes respectively.

PLANTS AND CUT FLOWERS.

It was very gratifying to observe the increased number of entrants in the group-class arranged on a space of 12 feet by 9 feet. The Silver Challenge Cup, value £10 10s., together with a cash prize of £5, offered as 1st prize was won by the Misses ROBINSON, Leamington, for a pleasing arrangement of well-grown foliage and flowering plants. The central feature of the exhibit consisted of a rustic bridge, on which choice foliage and flowering plants were used with good taste. Handsome plants, particularly reddish-leaved *Codiaeums*, together with *Dracenas*, *Odontoglossums*, *Verbenas*, *Begonias*, *Streptocarpus*, &c., were effectively displayed in the body of the group. J. H. BURLEY, Esq., Leamington (gr. Mr. H. J. Finch), was a good 2nd, and C. C. SHAW, Esq., Leamington, was placed 3rd.

FRANK DENNISON, Esq., Leamington, secured the 1st prize for 12 Roses, dissimilar, and another for six Tea Roses, dissimilar. Mr. W. J. NASH, Coventry, had the best half-dozen Roses, one variety, in splendid blooms of Mrs. John Laing. Mr. J. W. LAMPLOUGH, Leamington, exhibited the best six varieties of Sweet Peas, and HUGH MITCHELL, Esq., Hampden-in-Arden (gr. Mr. B. Hatcher), took the lead in a class for *Delphiniums*. Mrs. ROGERS, Leamington, was the only exhibitor of six spikes of *Gladioli*. The best half-dozen bunches of hardy border flowers came from J. B. ARKROYD, Esq., Rugby. Miss E. A. WHEILDON, Leamington, showed the best Carnations, and Mrs. E. T. BROMLEY had some very fine *Cactus Dahlias*.

The Rev. F. HODGSON, Clopton House, Stratford-on-Avon, again won the Silver Challenge Cup, value 15 guineas, presented jointly by Mr. F. BENISON and Mr. F. J. LAND, and £2, offered for four dishes of fruit to be selected from certain specified kinds. It was a curious coincidence that each of the four exhibitors should have selected Muscat Grapes, Nectarines, Peaches and Melons. The winning collection was very meritorious, Nectarines and Grapes being especially fine. 2nd, The Marquis of HERTFORD (gr. Mr. C. Harding). The last-named exhibitor showed (1) a class of two bunches of Black Grapes, having well-finished examples of *Madresfield Court*, and (2) the best dish of kitchen Apples. F. T. GARLAND, Esq. (gr. Mr. W. Keen), sent the winning pair of bunches of White Grapes. He showed Muscat of Alexandria in excellent condition. In a class for six Nectarines, the Rev. F. HODGSON took the lead with beautifully-coloured fruits of *Rivers's Orange*. J. H. BURLEY, Esq. (gr. Mr. H. J. Finch), had the leading dish of six Peaches, the Rev. F. HODGSON being a very close 2nd. Mrs. ROGERS beat nine contestants in a class for dessert Apples, and Lord WILLOUGHBY DE BROKE (gr. Mr. J. Lloyd), exhibited the best dish of Cherries.

In the vegetable classes F. E. MUNTZ, Esq. (gr. Mr. H. S. Foster), won the 1st prize in a class for six kinds, Lord WILLOUGHBY DE BROKE (gr. Mr. J. Lloyd) being placed 2nd.

TABLE DECORATIONS.

There was good competition in the classes provided for dinner tables, each 8 feet by 4 feet, decorated with flowers. In the open class there were seven exhibits. The 1st prize was won by Sir GEORGE H. KENRICK (gr. Mr. J. V. Macdonald), whose dainty arrangement of sprays of the small-flowered *Oncidium flexuosum*, *Phalenopsis* and *Cattleya*, displayed in rustic silver stands, were much admired. Various-tinted sprays of *Selaginella* and *Codiaeum* leaves were used with good effect. The 2nd prize was gained by W. STIRLING STUART, Esq., Leamington (gr. Mr. H. Cleaves),

who relied upon *Oncidium flexuosum*, *Gloriosa superba* and *Chanthus Dampieri*. Long sprays of *Selaginella* and *Ceropegia Woodii* were very effective.

In another class, open to ladies only, the prizes were offered by Robert Sydenham Limited. Miss DEAKIN, Hay Mills, Birmingham, won the 1st prize with a pretty arrangement of pale-pink Sweet Peas.

FRUIT (OPEN).

The principal class was for eight distinct dishes of fruit. Pineapple excluded. Two bunches each of black and white Grapes were allowed. The 1st prize consisted of a 25 guinea Silver Challenge Cup, presented by R. E. L. Naylor, Esq., together with £6 offered by the society. Each collection had to be decorated with flowers and foliage, for which separate awards were made.

The 1st prize was won by the Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson), who showed handsome Black Hamburg and Muscat of Alexandria Grapes. Pineapple Nectarine, Crimson Galande Peach, Locking Melon, Brown Turkey Figs, James Grieve Apple, and Jefferson Plums. The decorations comprised pink Malmaison Carnations, Asparagus, and sprays of *Selaginella*. 2nd, J. DRAKE, Esq., Market Rasen (gr. Mr. W. Parker), whose best examples were Madresfield Court Grape, Dryden Nectarine, Dymond Peach, Ribston Apple, and Dr. Jules Guyot Peas. Sweet Peas, François, and Carnations were used as decorations. 3rd, The Earl of HARRINGTON, Elvaston Castle, Derby (gr. Mr. J. Goodacre), whose Black Hamburg Grapes were excellent. The decorations consisted of Carnations, François, &c.

In a class for four dishes of fruit, the Duke of PORTLAND (gr. Mr. J. Gibson) was again to the fore with beautifully-finished bunches of Black Hamburg Grapes—the most perfect bunches of this variety in the show—Crimson Galande Peach, Brown Turkey Fig, and Royal Jubilee Melon. 2nd, The Earl of HARRINGTON (gr. Mr. J. H. Goodacre), whose Peaches and Nectarines were meritorious, but the Muscat Grapes were small in berry.

The Marquis of HERTFORD, Ragley Hall, Alcester (gr. Mr. C. Harding), showed the best two bunches of black Grapes with the variety Madresfield Court. 2nd, The MANOR FRUIT FARM, Knowle (gr. Mr. W. Wilkins), with Black Hamburg. The two best bunches of white Grapes were Muscat of Alexandria, exhibited by the Earl of HARRINGTON (gr. Mr. J. H. Goodacre). 2nd, F. T. GARLAND, Esq., Moreton Hall, Moreton Morrell (gr. Mr. W. Keen).

The Duke of PORTLAND (gr. Mr. J. Gibson) gained 1st prizes in the classes for (1) six Peaches, showing large, well-coloured fruits of Crimson Galande, (2) six Nectarines, with handsome specimens of Spencer, (3) three dishes of dessert Apples, and (4) six dessert Apples. The best dish of six Apricots came from Lord WILLOUGHBY DE BROKE, Compton Verney, Kineton (gr. Mr. J. Lloyd), who also showed the best dish of nine Plums and the best dish of Cherries. The Rev. F. HODGSON, Stratford-on-Avon, beat seven competitors in a class for the best-flavoured Melon. Mr. T. MARSH, Warwick, won 1st prizes in classes for (1) three dishes of kitchen Apples, and (2) a dish of kitchen Apples. The Rev. J. J. AGAR ELLIS, Offchurch (gr. Mr. E. Dolphin), beat all contestants in classes for Gooseberries and Red Currants, and E. FIELD, Esq., Leamington (gr. Mr. S. Billingham), excelled in the classes for Black and White Currants.

VEGETABLES

In the society's class for ten distinct kinds of vegetables Mr. JOHN HUDSON, Leicester, led with a good collection. The same exhibitor also secured the 1st prize for (1) 12 Tomatoes, (2) Peas, (3) Scarlet Runner Beans, (4) long-pod Beans, (5) Broad Beans, and (6) Carrots.

Messrs. Sutton & Sons offered prizes for six distinct kinds. 1st, Mr. JOHN HUDSON, whose Tomatoes, Onions, Cauliflowers, and Celery were very good. 2nd, Mr. E. DEAKIN, Hay Mills, Birmingham.

Mr. JOHN HUDSON was the only exhibitor in Messrs. Webb & Sons' class for six distinct kinds, and he was deservedly awarded the 1st prize.

Messrs. Dickson & Robinson's prizes were offered for six distinct kinds. 1st, F. E. MUNTZ, Esq., Umberslade Hall, Birmingham (gr. Mr. H.

S. Foster), who showed good examples of Money-maker Tomatoes, Snowdon Cauliflower, Express Potato, and Intermediate Carrot. 2nd, Lord WILLOUGHBY DE BROKE (gr. Mr. J. Lloyd). 3rd, Captain STARKLEY, Leamington (gr. Mr. G. L. Blackburn).

NON-COMPETITIVE EXHIBITS.

Messrs. SUTTON & SONS, Reading secured the Silver Challenge Cup, value 30 guineas, offered by Alderman Holt for the best non-competitive exhibit to occupy a space of 250 square feet. Messrs. SUTTON's group contained a representative collection of vegetables and saladings, some good Melons, and a bright display of annual and other flowers. A series of arches clothed with *Antirrhinum* formed a pretty background to this effectively-arranged exhibit.

A Gold Medal was awarded to Messrs. WEBB & SONS, Stourbridge, who missed winning the challenge cup by only four points. They had a large collection of fruit, flowers and vegetables of excellent quality.

The most extensive, varied and best-arranged group of choice stove and greenhouse plants was displayed by Messrs. JAMES VEITCH & SONS, Chelsea, who had beautifully-coloured foliage plants, choice Orchids, Nephenthes, Lilliums, Statice, and host of other good subjects arranged on a very low staging. (Gold Medal.)

Messrs. JARMAN & CO., Chard, exhibited Sweet Peas, zonal Pelargoniums and Centaureas. (Silver Medal.)

ROBERT SYDENHAM LIMITED, Birmingham, showed a choice collection of Sweet Peas in silver rustic stands. (Silver Medal.)

The TULLY NURSERIES, Kildare, staged a collection of new varieties of hybrid Gladioli. (Gold Medal.)

Messrs. GEORGE BUNYARD & CO., Maidstone, exhibited a large collection of Phloxes, Delphiniums and Nymphaeas. (Silver Banksian Medal.)

Messrs. JOHN WATERER & SONS, Bagshot, had a bright group of Hollies, Conifers and Japanese Maples. (Gold Medal.)

Messrs. DICKSONS, Chester, showed Roses and miscellaneous hardy flowers. (Silver Medal.)

Mr. T. MARSH, Warwick, exhibited Apple trees in pots bearing good crops of fruit. (Gold Medal.)

Messrs. W. H. SIMPSON & SONS, Birmingham, staged a large collection of Sweet Peas. (Silver Medal.)

Messrs. FRED. SMITH & CO., Woodbridge, had an assortment of hardy border flowers. (Silver Medal.)

Messrs. ALDERSEY and MARSDEN JONES, Tilton, Malpas, exhibited Sweet Peas, sprays of hardy shrubs and miscellaneous herbaceous flowers. (Silver Medal.)

Mr. W. HARPER, Leamington, showed cut flowers. (Silver Medal.)

The LAPWORTH NURSERIES, Hockley Heath, staged a group of Pentstemons, Hollyhocks, and varieties of *Lobelia cardinalis*. (Silver Banksian Medal.)

Messrs. HINTON BROS., Warwick, exhibited a group of plants and cut flowers. (Silver Banksian Medal.)

SOUTHAMPTON ROYAL HORTICULTURAL.

JULY 23.—This society held its 15th annual exhibition of Carnations and Sweet Peas in the Pier Pavilion on this date. Entries were fewer than usual, and the display was, therefore, less attractive than usual.

In Division I. nine classes were "open to all," five of these being for dressed flowers.

For 12 blooms of Flakes and Bizarres, distinct, two competed, Messrs. A. R. BROWN, LTD., Wyckall Nurseries, King's Norton, winning the 1st prize easily with fairly good blooms of *Reliance*, Mrs. T. Lord, Ethel Macrae, Geo. Rudd, W. Prescott, and Cleopatra. 2nd, Mr. HAYWARD MATHIAS, Medstead. The same exhibitors occupied similar positions in the class for 12 Fancies, distinct. Devonian, Alice Byron, Pasquin, Attraction, and Orlando were the more prominent blooms in the premier collection. Messrs. BROWN was also placed 1st for 12 Sells, distinct, Daffodil, Hadzor, Aleppo, Major Galton, Alderman, and Iberia being noteworthy. In the class for 12 Yellow-ground Picotees Mr. HAYWARD MATHIAS beat Messrs. BROWN, but this firm won the 1st prize in the class for 12 White-ground Picotees.

VASE CLASSES.

There were three entries in the class for three distinct varieties, five blooms of each sort. Messrs. A. R. BROWN again excelled, having choice flowers of Cambria and W. H. Parton. 2nd, Mr. W. H. PARTON, Moseley, Birmingham, with choice blooms of Margaret Thurston, Gaiety and Clement. Messrs. BROWN also excelled in the class for three Fancies; whilst Mr. HAYWARD MATHIAS occupied a similar position in the class for three Yellow-ground Picotees. In a small competition Messrs. BROWN won the 1st prize for vases of Sells, Fancies, and Yellow-ground Picotees with Agnes Sorrel, Elizabeth Shiffrer, Solfaterra and King Coffee. 2nd, Mr. HAYWARD MATHIAS.

AMATEURS' CLASSES.

In the amateurs' section Mr. W. H. PARTON was the most successful exhibitor, winning the 1st prizes in the classes for six Fancies, six Sells, and six Yellow-ground Picotees with medium-sized, neatly-dressed flowers. In the vase classes also Mr. PARTON was unassailable, winning the 1st prizes for Sells, Fancies, and Yellow-ground Picotees, Fancy, White, Blush and Crimson Carnations.

Mr. J. H. LINNINGTON, Portofino, Isle of Wight, had the best of three exhibits in a class for one vase of a Yellow Self Carnation, and he was also placed 1st for a Terracotta Self.

American or Tree Carnations were best shown by Mr. F. CHANDLER, 75, Shirley Road, Southampton.

PREMIER BLOOMS.

Bizarre: *Reliance* (Messrs. A. R. BROWN); *Flake*: Mrs. T. Lord (Messrs. A. R. BROWN); *Fancy*: Hecla (Mr. HAYWARD MATHIAS); *Yellow-ground Picotee*: Lady Douglas Galton (Mr. HAYWARD MATHIAS); *White-ground Picotee*: Lady Ethel (Messrs. A. R. BROWN).

ROYAL SCOTTISH ARBORICULTURAL.

JULY 24-29.—At the Inverness Show of the Highland and Agricultural Society of Scotland, a forestry exhibition was organised by the Royal Scottish Arboricultural Society. The display was of a most practical character, and was grouped under two main sections: (1) Articles in competition, and (2) articles for exhibition only. In the competitive section the visitor found the normal and abnormal in growth and structure, results from proper and improper pruning, characteristic fungi, samples of damage caused by squirrels, voles and other creatures, and a superb collection of injurious insects from the larval stage upwards. An outstanding feature of the exhibition was the fine display made by Mr. SCOTT and his assistant, Mr. WATT, from the Darnaway Estate. It comprised over 50 varieties of cones of Pine trees and nearly 40 varieties of native-grown timber. The collection of planks from this estate was much admired. Another fine exhibit was that sent by the Countess Dowager of SEAFIELD (forester Mr. Gilbert Brown). The specimens of wood shown were all grown in Abernethy Forest. Six sections of Larch, three of which indicated decayed heart rot and the other three sound timber, showed to a certain extent the effect that different soils have on the health, and, therefore, on the quality of the timber. The plants shown were all cut from trees grown at an altitude of from 700 to 800 feet above sea level. It was explained that the exhibits showing heart rot were taken from trees grown on soil with a thin upper layer of medium forest soil, with a very indifferent under layer, the latter being either rock, pan, or gravel. It is not to be thought, however, that all the Larch grown on this area suffered from heart rot, but it was insisted that on areas composed of soil of the nature just described, heart rot is common. The sound specimens shown by Mr. BROWN were all taken from trees grown on soil that had a considerable depth and good natural drainage. Mr. BROWN also showed samples of the turf taken from woods being prepared for natural regeneration. Brodie, of Brodie, one of the judges, in his report, commented very favourably on Mr. BROWN's fine display. There were also fine displays from the estates of the Earl of MORAY, the Marquis of GRAHAM, Lochiel; Captain STIRLING of Keir; Sir WILLIAM GORDON CUMMING, Bart.; Mr. DYSON PERKINS, of Aberdeen, and Mr. DAVID LECKIE, Kippenross. The Ardross Estate exhibits deserve special mention for the fine collections in every section.

MARKETS.

COVENT GARDEN, August 2.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices actually paid for the goods, but only the general averages for the week preceding the date of the report. The prices depend upon the quality of the samples, the way in which they are packed, the supplies on the market, and the demand, and they may fluctuate not only from day to day, but occasionally several times in one day.—E.B.Y.]

Cut Flowers, &c.: Average Wholesale Prices.

	s. d.	d.		s. d.	d.
Arums, (see Rich- ardson)	3	0	—		
Carnations, p. doz. bunches, best American va- rieties, ...	1	0	—		
— per doz. bunches	6	0	3		
— China, extra fine crimson Gentiana, (see flower), blue & white, per doz. bunches ...	0	9	10		
— Coreopsis, per doz. bunches ...	1	0	16		
— Galathea, per doz. bunches ...	0	1	6		
— Gardenia, per dozen ...	1	6	20		
— Gladioli, per doz. bunches ...	3	0	40		
— Impatiens, Broomleyensis, per doz. spikes ...	1	6	20		
— Gypsophila, double flowered, per dozen bunches ...	6	0	—		
— Larkspur, water, per dozen bunches ...	1	6	20		
— Lilies, autumn per bunch ...	2	6	30		
— Long-stemmed, long per doz. ...	1	0	16		
— Sweet, per doz. bunches ...	0	9	10		
— Lilies, (see Rich- ardson)	1	6	20		
— Marigolds, long, per doz. bunches ...	1	6	20		
— Sweet, per doz. bunches ...	0	9	10		
— Lily of the Valley, per doz. bunches ...	1	0	16		
— Extra special ...	1	0	12		
— ...	6	0	—		
— Mignonette, per doz. bunches ...	3	0	—		
— Marguerite, per dozen bunches ...	1	6	—		
— Nigella (Love-lies- Mist) ...	1	0	16		
— Orchids, Cattleya, per doz. ...	18	0	24		
— ————, small crispum ...	3	0	40		
— Petalums, per dozen bunches ...	3	0	40		
— Double Scarlet White ...	4	0	—		
— Richardsons, per doz. bunches ...	3	0	—		
— Roses, 12 bloom- ing ...	0	1	6		
— ————, Bride-maid, per doz. ...	0	1	6		
— ————, Druschki ...	0	9	16		
— ————, C. Mermut ...	0	9	16		
— ————, John Lang ...	1	0	16		
— ————, Liberty ...	1	0	16		
— ————, Nine chateaux ...	1	0	16		
— ————, Niphetos ...	1	0	16		
— ————, Richmond ...	0	6	16		
— ————, Sunrise ...	0	6	16		
— ————, Sunset ...	1	0	16		
— Stock, per dozen bunches ...	3	0	40		
— ————, Maize ...	3	0	40		
— ————, White ...	3	0	40		
— Sweet, (see Rich- ardson)	1	6	—		
— Stock, white (Eng- lish), per doz. bunches ...	3	0	40		
— Sweet Peas, white, per dozen ...	3	0	40		
— ————, per dozen ...	3	0	40		
— ————, Tuberoses, gross ...	3	0	40		
— ————, per doz. ...	3	0	40		
— ————, blooms ...	0	4	—		
— ————, Viola, (see blue, Forget-me-not)	0	9	16		

Cut Foliage, &c.: Average Wholesale Prices

s d s d		s d s d	
A. l. and in bunch		Croton foliage, various, per dozen	12 0-15 0
A. l. flowers, best, per doz.	3 0-4 0	Cycas leaves, ariz-	
A. l. flowers, per doz.	3 0-4 0	onized, per doz.	3 0-12 0
A. spat. gl. plant		Elea. n. plant, per basket	1 0-1 6
A. spat. gl. plant, best, per doz.	16-20	Moss, per gross	6 0 -
A. spat. gl. plant, med. size, each	1 1-3 19	Myrtle, de. belv.	
A. spat. gl. plant, small-leaved	1 0-12 0	(E. g. a. small-leaved)	6 0 -
A. spat. gl. plant, French	1 0-12 0	French	1 0 -
A. spat. gl. plant, foliage, each	3 0-4 0	Sim. plant, 6 fr. bunch	13 1-6

Plants in Pots, &c. Average Wholesale Price

	s.d. s.d.		s.d. s.d.
<i>Aralia Sieboldii</i> , p.	6.0 - 7.0	<i>Geonoma gracilis</i> ,	6.0 - 24.0
<i>Asplenium</i> <i>eximium</i>	per dozen	per dozen	6.0 - 24.0
per dozen	18.0 - 20.0	<i>Heliconia</i> <i>lutea</i>	4.0 - 5.0
<i>Asparagus plumosus</i>		<i>Hydrangea</i> <i>pinn.</i>	
per dozen	10.0 - 12.0	48's, per dz.	9.0 - 10.0
— <i>Springer</i>	5.0 - 9.0	— <i>pinniculata</i> , per	
<i>Aspidistra</i> , p. dz.		— <i>per dozen</i>	18.0 - 24.0
— <i>green</i>	21.0 - 30.0	<i>Kentia</i> <i>Hemera-</i>	
— <i>Varietated</i>	30.0 - 60.0	<i>ana</i> , per dozen	5.0 - 4.0
<i>Coccoloba Weddell-</i>	6.0 - 60.0	<i>—</i> <i>Robinsonii</i> , p.	5.0 - 12.0
<i>croton</i> , per dozen	18.0 - 30.0	<i>—</i> <i>longifolia</i>	
<i>Cyperus alternifolius</i> , per	5.0 - 6.0	<i>—</i> <i>florim</i> , per dz.	6.0 - 12.0
<i>—</i> <i>laxus</i> , per dz.	4.0 - 5.0	<i>Marguerites</i> , white,	
<i>Draconia</i> , green,		per dozen	6.0 - 8.0
per dozen	10.0 - 12.0	<i>Mignonette</i> , per dz.	
<i>—</i> <i>in small and</i>	8.0 - 12.0	— <i>per dozen</i>	3.0 - 5.0
<i>—</i> <i>large</i>	12.0 - 20.0	<i>Pandanus Veitchii</i> ,	
<i>—</i> <i>choicer sorts</i>	5.0 - 9.0	per dozen	36.0 - 48.0
per dozen	8.0 - 12.0	<i>Paragonium</i> , per	
<i>—</i> <i>elastica</i> , per	10.0 - 18.0	— <i>per dozen</i>	
<i>—</i> <i>laxa</i>	9.0 - 12.0	<i>Phenix rupicola</i> , a	
<i>—</i> <i>per dozen</i>	5.0 - 6.0	— <i>per dozen</i>	2.6 - 3.1
		<i>Spiraea</i> (pink)	10.0 - 12.0
		<i>Verbena</i> <i>Miss Will-</i>	
		<i>mott</i> — <i>per dozen</i>	6.0 —
		<i>—</i> <i>per dozen</i>	6.0 —

Fruit: Average Wholesale Prices (continued)

	s.d.	s.d.		s.d.	s.d.
Apricots (French), per ½ sieve	9	0 1-0	Lemons		
Bananas, bunch:—			— Messina (3000,		
— Bananas	10	0-13 0	— per case	9	0 14
— Extra	10	0-13 0	Mangoes, per doz.	3	0-13 0
— Giant	16	0-20 0	Melons (Guernsey)	1	0-12 0
— Loose, per bushel	0	8-9 1-3	— (English)	1	0-12 0
— Red coloured	9	0-12 0	— French Cantaloupe	2	0-30 0
— Jamaica Giants, per bunch	10	0-12 0	Nectarines		
— Jamaica Giant nary, per box	6	0-7 0	— selected	12	0-18 0
Cherries (English), per ½ bushel	11	0-16 0	— best	4	0-8 0
— (Dutch), per sieve	3	0-4 6	— medium	2	0-3 0
— French, per ½ bushel	1	0-6 0	Nts. Apples, p. bag	35	0-42 0
Cranberries, per case (30 qts.)	10	6—	— 5 lb. sack	16	6—
Currants, ½ sieve:—			— Brazos, net per cwt.	65	0-70 0
— Black	7	0-9 0	— Broomera, per bag	32	0-34 0
— Red, per peck	3	0-10 0	— Cocanats (100)	10	0 14 0
— White	3	0-3 6	— English Cobs per lb.	6	0-6 0
— white, per doz. pines	3	0-4 0	— pickling		
— Red	3	0-4 0	— ½ bushel	2	0-2 6
— (Guernsey), per dozen	2	0-4 0	Oranges, Murcia		
— (English), per bushel	1	0-2 0	— per case	12	0 10 0
Gooseberries, per ½ bushel	1	0-2 0	— Nats. case	3	0 12 0
— Golden Drop, per bushel	8	6-4 6	— Palermo Bards, per case	6	0—
— Red	2	0-3 0	— African Natal	8	0-12 0
Grapes Fruit, case:—			— Naartjes, per tray	1	0-1 6
— Black	20	0-24 0	— Pears (English), Chicks	4	0-4 0
— Green	20	0-24 0	— per bushel	2	3-2 6
— 54's	10	0-3 0	— (French), per sieve	5	0-6 0
Grapes (English), per lb.	1	0-3 0	Peaches (English), selected	12	0-18 0
— Muscat of Alexandria	1	0 3 0	— best	6	0-10 0
— Cannon Hall	2	0-5 0	— medium	2	0-3 0
— Madresfield Court	1	0-6 0	— (French), per box	1	4-2 0
— Black Ham	0	8-2 6	— (French), per ½ sieve	6	6 8 0
— Black Alicante	0	11-1 6	Pineapples	2	0-30 6
— Black Alicante	1	0 1 6	— Michigan	3	0-7 0
— Gros Maroc	1	0 1 3	Plums (English), Early Rivers p.		
Greenhouse (Spanish), per box	1	6-2 0	— ½ sieve	10	0-13 0
— 1 doz.	10	0-12 0	— Marzani	4	0 16 0
			— Marzani	4	0 16 0
			— (French)	4	0-6 0
			— Italian	1	6-4 6
			— Italian	1	6-4 6
			Raspberries, punnets, each	1	0 1 6

Vegetables : Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Artichokes (Globe), per dozen	2 6	-	Marijuana (Tress, per 1/2 lb. bag)	-	-
Beans (Jersey), lb.	0 2	0 3	potatoes	1 0	-
— (English), p. lb.	0 3	0 4	Onions (Egyptian), per bag	8 0	-
— (French), per lb.	0 3	0 4	— (Spanish), per bag	8 0	-
— (Jersey), per lb.	0 3	0 4	— (Spanish) New, per case	5 0	6 0
— per 1/2 basket	1 6	-	— (Lisbon), cases	5 0	-
— Broad, bushel	2 6	3 0	Parsley, 1/2 sieve	1 0	1 6
— Scarlet runners	4 0	-	— 1/2 sieve	3 0	-
Beetroot (new), per doz. bunches	2 0	3 0	Peas (French), per packet	—	0 5
Cabbages (English), per doz.	3 6	-	— (Jersey), per packet	—	0 5
Carrots (English), per doz. bun.	1 3	1 6	— (English), p. bs.	3 6	6 0
— Chaco flowers, p. dz.	1 0	1 6	— (Spanish), p. bs.	3 6	6 0
Cucumbers, per doz.	0 3	0 4	Potatoes, (Jersey), per cwt.	4 0	1 6
— round, p. flat	0 6	7 0	— (Lisbon), per cwt.	7 6	-
— Endive, per dozen	3 0	-	— (Spanish), per cwt.	7 6	-
— French, per doz.	3 0	-	— St. Malo	4 0	4 6
— pkts., p. gross	7 0	-	Radishes (English), per dozen	1 0	-
Horse radish, 12 bundles	32	40 5 0	Spinach, p. bushel	2 0	-
— English, per doz.	1 6	-	— (English): — Selected, per 12 lbs.	—	3 0
— round, per doz.	0 9	1 0	— Spanish, per 12 lbs.	—	1 6
— fennel (English), per dozen	1 0	-	Turnips (English), per doz. bunches	3 0	4 0
— fennel, p. bunches	10	12 3	Ward, per doz. bunches	—	0 6
— broilers	0 8	0 9	— bunches	—	0 6

REMARKS.—English Cherries are practically finished, only a few fruits of Bigarreau (Turkey Heart) and Bigarreau Napoleon being obtainable at high prices. Supplies of Currants are also very limited. Dessert Apples have realised high prices during the past week. Black Grapes continue to sell well. Tomatoes have been very plentiful and cheap; their prices will doubtless be lower still, as large quantities are arriving in a ripe condition. The market is also receiving large consignments of Tomatos from France and Holland. The last shipment of Australian Apples arrived this week; the fruits met with a moderate sale. Peaches and Nectarines are a limited supply, with a slight increase in their values. Melons from all sources are very plentiful, and they are in consequence cheaper. Figs, both English and Channel Island grown, are plentiful and are meeting with a fairly good demand. The vegetable trade shows a decided improvement as compared with last week. E. H. R. C. sent *Garden*, August 2, 1881.

New Potatos.

	per cent Sd. sd.		per cent Sd. sd.
Kent's —			
Sharpe's Express ..	50 3.6	Queen ..	46 5.0
Eclipse ..	46 3.6	Blackland ..	40 4.6
Episcure ..	43 3.6		
Lincoln's		Bedford's	
Sharpe's Express ..	46 5.0	Eclipse ..	46 5.0
Eclipse ..	46 5.0	Maritan ..	46 5.0
Episcure ..	43 4.1	Episcure ..	43 4.6

Remarks.—Trade in the corn harvest of 1911 was very light on an account of the very early frost. *Edward Newberry, Town Garden Co., St. Louis, Mo., August 2, 1911.*

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending July 29, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather. Over England the weather, although mostly fair to bright, was more variable than during the preceding week; while in Ireland and Scotland the general condition was unsettled and rain frequent. Thunderstorms occurred in various districts on the 25th and 26th, a violent thunderstorm in London and some other parts of southern England on Friday, and on Saturday thunderstorms were experienced over the kingdom generally, those in Ireland being, locally, very severe.

The temperature was severe. The average, the eel being very slight in Scotland N., but large in all parts of England. The absolute maxima were again unusually high, and were generally recorded during the latter part of the week. They ranged from 93° in the midland counties, 92° in S.E. and S., and 91° in England N.E. and S.W., to 76° in Scotland E., and 75° in Scotland N. The lowest of the minima, which occurred during the latter part of the week, varied from 37° in Scotland E., to 48° in England S.E., and to 67° in the English Channel. On several nights the minima over a large portion of England were as high as 60°. The lowest grass readings were 29° at Burnham-on-Warfe, 30° at Burnley, 31° at Barmston, and 34° at Burnley, Barmston, and Cratcliffe.

The *rainfall* was much less than the average in nearly all parts of England and in Scotland E., but considerably more in Ireland, Scotland N. and W., and the English Channel district. At Alnwick and Bath the week was rainless, and in some parts of England there was less than 0·10 inch. During the thunderstorm in London on Friday 11 inch fell in South Kensington in 15 minutes. At Kilkenny during the storm of Saturday 9·14 inch fell between 4.30 p.m. and 7 p.m. and at Dublin 1·21 inch in 15 minutes. At Cahir the rainfall amounted to 1·93 inch.

The bright sunshine was again in excess in England, but deficient in Scotland and the north of Ireland, and only equal to the normal in Ireland S. The percentage of the possible duration ranged from 87 in England S.E., 63 in England E., and 60 in the English Channel, to 22 in Ireland N. and Scotland E., and to 14 in Scotland N.

THE WEATHER IN WEST HERTS.

Week ending August 2.

The fourth hot and dry week in succession.—The day temperatures have again been very high during the past week, the highest readings in the thermometer screen on five of the seven days being in the neighborhood of 90 degrees. The reading as yet recorded here this year, and has only twice before been equaled in July during the past 25 years. The nights, although warm, were again not nearly so unseasonable as the days. The average temperature for the past week is 5° warmer than is seasonable, both at 1 and 2 feet deep. Rain fell on four days, but the total measurement amounted to about half an inch. During a thunderstorm on the 25th, the wind blew from the west at the present rate for five minutes at the average rate of 13 inches an hour. No rainwater at all has now passed through either of the rain gauges for more than four weeks. The sun shone on an average of 10 hours and 39 minutes a day, which is 32 hours a day in excess of the usual duration at the end of July. Light airs again prevailed, the wind blowing from the west, and the prevailing westerly point of the compass. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by as much as 18 per cent. On the 25th, the difference between the readings of the ordinary thermometer and one with its bulb kept constantly moist amounted, at 3 o'clock in the afternoon, to as much as 18°.

JULY.
month

the average for the same month in the past twenty-five years, and higher than in any month whatever in any of the years since the year 1850, the only one with the temperature of the month of July. The nights although as a rule very warm, were not so unseasonably warm as the days. The highest temperature registered on one of the nights, which has only twice before been equalled in July during the past twenty-five years. On thirteen days the highest reading in the thermometer scale exceeded 80°; on five days it was 85° or higher. On only one day was the lowest temperature registered by the exposed thermometer 35°, which is rather below the average July minimum. Rain fell on only one day, and in a quantity a little more than half an inch, which is 1½ inch below the average for the month. Between the 1st and 7th, or for about one-third of the month, the weather was so hot although such a very dry month there have been five or six days in the last fifty-five years which have here had as much rain as the month of June. On one day, one day or for four hours it rained on an average for 104 hours in the month of July during the past twenty-five years, or in summer months. The previous highest daily average was in May 1909, when 94 hours was recorded. The winds were from the west and west-south-west on nearly as many of the previous twenty-five Julys. In the windiest hour the mean velocity only amounted to eleven miles. The amount of humidity was not so high as in the previous season, a reasonable quantity for that hour by as much as fifteen per cent.,—making the amount of humidity in the air lower than any day in any one month whatever during the past twenty-five years. *W. H. B. Morgan.*

LAW NOTE.

SALE OF "PLANT FOOD."

At the Wakefield City Police Court on the 19th ult., a manufacturer, of Rochdale, appeared to answer a summons taken out against him under the Fertilisers and Feeding Stuffs Act. Mr. R. Jones, who prosecuted on behalf of the West Riding County Council, said that defendant sold to Mr. J. H. Sheard, of Wakefield, an article described as "Burgess's Famous Plant Food." It was sold in penny packets, and was stated to contain 22.08 of phosphorus, whereas when analysed by Mr. B. A. Burrell, the Deputy Agricultural Analyst for the West Riding County Council, it only actually contained 1.84, a deficiency of 20.24. The defendant sold it at the rate of £33 per ton, whereas it only cost 16s. per ton. It was a gross fraud on the public, for what had been sold was of very little use indeed, and they wanted to protect the public in Wakefield and the West Riding from purchasing such an article. Defendant, who said that he had committed the error in ignorance, was ordered to pay a fine and costs amounting to £3 10s., or go to prison for a month.

DEBATING SOCIETY.

BRISTOL AND DISTRICT GARDENERS.—The monthly meeting was held on July 27 at St. John's Parish Rooms; Mr. Perry presided. An interchange of views with Bristolington was inaugurated, and Mr. W. J. Pollard, who represented that society, gave a lecture on "Begonias." A discussion followed.

GARDENING APPOINTMENTS.

(Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.)

- Mr. C. R. FIELDER, for the past 12 years Gardener to Mrs. Burns, North Myms Park, Hatfield, as Gardener to Miss WILLMOTT, Warley Place, Great Warley, Essex.
- Mr. JAMES A. PAICE, for the past 24 years Gardener to Vice-Admiral Sir JOHN JELlicock, Thornton, Harrow Weald, Middlesex, as Gardener to P. E. WARREN, Esq., Carling House, Leeds, Maidstone. (Thanks for contribution to R.G.O.F. box.—Eds.)
- Mr. G. A. RIDLEY, for 10 years Gardener to the Right Hon. Viscount DERBURY, at Dynes Hall, Hasted, Essex, as Manager of the Broome Nurseries, near Stourbridge, Worcestershire.
- Mr. E. M. STREETER, for the past 14 years Gardener to Mrs. JELLINGS BLOW, Cranham, near Stroud, Gloucestershire, as Gardener to W. CLARK, Esq., Beenhaim Court, near Newbury, Berkshire. (Thanks for donation of 2s. for R.G.O.F. box.—Eds.)
- Mr. JAMES TANNOCK, for the past 5 years—Foreman to G. H. STRUTTS, Esq., Bridge Hill, Belper, as Gardener to that gentleman at the same place. (Thanks for 2s. 6d. for R.G.O.F. box.—Eds.)

SCHEDULES RECEIVED.

Maidenhead Chrysanthemum, Fruit and Vegetable Society's exhibition, to be held in the Town Hall, Maidenhead, on Friday and Saturday, October 27, 28, 29. Secretary, Mr. J. Gibson, 24, York Road, Maidenhead.

A useful list of flower show fixtures, principally in Scotland, has been forwarded by Messrs. Austin & McAslan, 89, Mitchell Street, Glasgow. It is in the form of a booklet suitable for the exhibitor, and should prove of great value to exhibitors. Copies may be had free on application to Messrs. Austin & McAslan.

CATALOGUES RECEIVED.

CHRISTOPHER BOURNE, Simpson, Bletchley—Daffodils.
F. HERBERT CHAMMAN, Chesham—Puffballs.
LITTLE & BALLANTYNE, Carlisle—Bulbs, Roses, and Fruit Trees.
STEWART & Co., 13, South St. Andrew Street, Edinburgh—Bulbs.
H. CANNELL & Sons, Swanley, Kent—Bulbs.
AUSTIN & MCASLAN, Mitchell Street, Glasgow—Bulbs.
JULIE BROS., 13, London Road, Brighton—Bulbs to exhibitors. Copies may be had free on application to Messrs. Austin & McAslan.

FOREIGN.

WALTER BLON & Son, Overveen, near Haarlem, Holland—Bulbs.

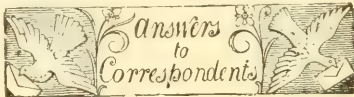
TRADE NOTICE.

MESSRS. STUART LOW & CO.

Mr. Thos. Low has been appointed Carnation grower to Messrs. Stuart Low & Co., in place of Mr. Allwood, whose retirement was announced in our issue of July 22.

Obituary.

ERNEST SAXBY.—At Burton Manor, Chester, on Wednesday, July 26, Ernest Saxby, foreman in the gardens, was accidentally drowned whilst bathing in the lake. He was a promising young gardener, and had spent two years as decorator in the gardens at Belvoir Castle, Grantham, and had also served in the gardens at Studley Royal, Conishead Priory, Viceroyal Lodge, Dublin, Elsham Hall, and Wentbridge House, Pontefract. The funeral took place on Saturday, July 29, at Wentbridge, Pontefract.



* * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

ABIES ORIENTALIS AND SCOTCH FIR.—W. E. Your trees are attacked by aphid and Chermes abietis. They should be sprayed twice during the winter with the following specific:—Soft soap, 3 lbs., dissolved in two quarts of boiling water, adding one pint of paraffin when boiling; stir rapidly until a buttery mass is formed. Dilute this mixture with five gallons of water.

ANALYSIS OF SOIL.—W. B. There is something radically wrong with respect to the figures which you send us of the soil-analysis. Thus the analysis makes no mention of sand or clay without one or other of which substances "soil" cannot be said to exist. Forty-seven per cent. iron and 3 per cent. copper are astonishingly high figures for these substances, which occur in ordinary soils only in traces, and suggest that the "soil" is more suitable for mining than for horticultural purposes. Chlorides to the extent of 14 per cent. are in exuberant excess. The absence of phosphates and nitrates is, of course, a fatal defect to the use of this soil for purposes of cultivation. No mention is made of potash, which is another indispensable plant food. In short, it may be stated with confidence that nothing whatever in the way of horticultural produce will grow in stuff having the composition given in your analysis.

BEDDING CALCEOLARIAS.—John Edwards. The flowers had fallen from the stems when received, and we were unable to form any opinion as to the merits of the varieties.

BEGONIA GLOIRE DE LORRAINE.—Anxious. The crinkling of the foliage is caused by eelworm. Three drops of carbon bisulphide should be poured on the crocks through the hole in the bottom of the pot. Do not water the plants for 12 hours after this has been done. Carbon bisulphide is highly inflammable.

CUCUMBER DISEASE.—A. H. C. Your plants are affected with the Cucumber leaf-blotch. Spray them with liver of sulphur at a strength of one ounce in three gallons of water.

IRON FENCE.—Selsey Bill. Although iron work is not to be recommended for plant supports, there is less objection to it when it is galvanized. Your Peaches might succeed perfectly well when trained against a galvanized iron trellis work, but it would be advisable to place slips of wood between the shoots and the iron, or you might bind the latter with pieces of cloth before fastening the branches. Great care must be taken to prevent the iron chafing the bark during windy weather.

NAMES OF PLANTS.—J. Mason. 1. Antirrhinum plurimum; 2. Diarrhous plumarius; 3. (specimen withered apparently) Lysimachia vulgaris.—J. W., Oak Mount. 1. Campanula trachelium album (the strong-growing one); 2. C. carpatia alba.—Charles Serridge. Aristolochia elegans.—N. A. L. 1. Juniperus sp.; 2. Eucalyptus ficifolia; 3. Crataegus uniflora; 4. C. Pyracantha; 5. Escallonia rubra; 6. Asparagus deflexus.—B. P. Rose Mrs. John Laing.—J. W. Rawdon. Tropaeolum polyphyllum.—W. E. Pontederia corulea.—A. Hawood. Spiraea Menziesii.—Interested Reader. Heuchera sp.; send when in flower.—J. W.

Tigridia Pavonia (Common Peacock Iris).—H. T. P. 1. Paphnia cristata; 2. Maxillaria luteo-alba; 3. Epidendrum rigidum; 4. Oncidium triquetrum; 5. Oncidium flexuosum; 6. Brassia bicolor.—J. C. Gomesa Barkeri.—P. H. R. Gloriosa grandiflora (Leopoldii): it is a yellow or pale reddish flower closely allied to Gloriosa virens. (See Supplement in Gardeners' Chronicle, September 10, 1904.)—J. B. O. Robinia hispida.—R. O. Catasetum callosum.

ODONTOGLOSSUM THOMSONIANUM.—Bee. The fungus causing the injury is Nectria orchidis. Preventive measures must be adopted. Remove all infected flowering spikes and sponge apparently healthy ones with a rose-red solution of permanganate of potash.

PACKING BULBS IN SAWDUST.—S. F. C. Sawdust is often used for packing bulbs, but care should be taken to see that it is perfectly dry. It is not at all injurious to bulbs.

ROSES UNSATISFACTORY.—La Rose. Your plants are perfectly healthy, there being no trace of disease. We would advise watering more freely, using liquid manure occasionally. The subsoil appears to be unsatisfactory, and probably some of the trouble is caused through the roots entering this. It would also seem that you have cut away too many of the shoots because they have failed to produce flowers, and at a time when the sap was active, causing a check. If you have 12 main shoots, some already 8 feet long, that is a satisfactory number. It is unusual for this Rose to behave as you describe. You appear to have treated Prince de Bulgarie and Caroline Testout correctly, with the exception that 18 inches is too close pruning. The "blind" growths upon Dorothy Perkins are probably due to the frosts of late May, which caused much harm amongst early varieties.

ROSE LEAVES FOR EXAMINATION.—J. B. The leaves are affected with red rust. The minute maggot you refer to feeds on the spores of the fungus; it is therefore not an enemy, but a friend. Burn all fallen leaves during the winter.

TOMATO LEAF WITH SPOT.—Tower Lodge. The leaves are affected with Tomato leaf-rust. They should be sprayed with liver of sulphur at the rate of one ounce to two gallons of water, but if the foliage is soft, use three gallons of water.

VIOLAS UNSATISFACTORY.—J. L. and J. P. The trouble is due to the soil being infested with the fungus Botrytis. Treat the ground with quicklime.

WILLOW BARK INFESTED WITH PARASITES.—H. W. The Willow is attacked by the Ash and Willow scale (Chionaspis salicis). The piece of bark sent is covered with male scales, and the red-winged, minute males are hatching out. The creature does some harm to the trees, but not to the same extent as the scale insects that may attack fruit trees. If an ornamental tree is attacked by this scale, it may be well to destroy the insect by spraying or scrubbing the bark with paraffin emulsion. When Ash poles that have been attacked are cut, the peelings should be burnt at once. Probably your informant from abroad was confusing this pest with the destructive San José scale.

WEED OVERRUNNING A GARDEN.—E. C. The plant you send is Polygonum cuspidatum, a native of Japan, and introduced to gardens in this country in 1825. This Polygonum extends very rapidly by means of its underground stems, but we have never heard of a similar case where it was found impossible to eradicate it from a garden. By trenching the ground and throwing out every portion of the underground stems with you, should get rid of it. If you cut off the growths whenever they appear above ground, this will considerably weaken the plant.

Communications Received. H. Sharp Kreuzschep (Thanks for 2s. 6d. donation for R.G.O.F. box. Eds.). A. C. B., P. W. S., K. & B., C. T. D., Settling; J. E. P., G. M., W. W. Ltd., F. H. A. W., South-C. R. & D. G. A., W. B. S., H. W. R. H. F., J. C. F. B., T. S., H. R. D., F. J., T. H., H. A., W. C., W. L. P., K. A. Son, H. S., C. H., H. C., D. F., R., W. B., W. M. P., J. R., Ltd., S. C., C. G. D., W. F. E., W. P., W. J. K., W. E. B., R. H. P., T. S. & Co., W. L. A. & S. A., C. B. G., B., A. B. C.—Anxious.



THE Gardeners' Chronicle

No. 1,285.—SATURDAY, August 12, 1911.

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SAND DUNES.

THE modern naturalist is not infrequently charged with inability to express the results of his observations in form intelligible to the layman, and this lack of literary gift on his part is contrasted forcibly with the charm which characterises the writings of the older school of naturalists. The criticism is, we think, deserved, though signs are not wanting that the students of natural history are awakening to the real necessity of bringing the results of their labours to the notice of a wider public than that constituted by one another. Thus, for example, in one of the recent volumes of the *Manuals of Science and Literature*, Professor Bower demonstrates that it is possible—indeed, the careless reader perusing his pages might think it is easy—to put the main conclusions of his investigations on the origin of land floras* in a form which is popular in the best sense of the word. That is to say, he

writes well and picturesquely, and simply enough to be intelligible to any educated person. Of the several interesting chapters in which Professor Bower sketches the struggle whereby primitive plants have made their way landward from the sea, we do not propose to speak here. We must content ourselves with giving an outline of the excellent account, contained in Chapter 8, of the origin of those bulwarks of low-lying coasts, the sand dunes.

After pointing out that many of our cultivated vegetables are the descendants of sea-shore plants—Cabbage, Sea-kale, Carrot, and Beet, among others—and explaining that in thus exploiting them for culinary purposes, man is only taking advantage of a succulence which a saline habitat induces in plants, Professor Bower takes us down to the sea beach and shows us the sand dunes in the making. Two agents are involved in the fashioning of the dune from the sand, the wind and vegetation. The wind brings the material and the vegetation constructs the mound, which, rising higher year by year, becomes at last the chain of hillocks which acts as a barrier to the sea and checks its encroachment landward.

In the beginning, wind and plant co-operate; but wind is proverbially fickle and is apt to destroy what it has helped to create. Thus, where the plant-preservers of the dunes are not present in sufficient numbers, every blast which comes from over the ocean plays capricious tricks with these sandy hills, co-operates with the big tides to undermine their flanks and bring the sand of which they are made tumbling to the beach again, only to be hurried away and to start elsewhere the upbuilding of the transitory white, or shifting dunes. On the other hand, where plants are present in force, the white dune changes complexion slowly as it becomes covered with vegetation and settles down as a grey dune to comparative permanence.

Not all plants, however, are adept at dune formation. The annual, for example, may begin the task, but before its efforts have been rewarded by any but the puniest of results its life is over “and all the rest forgot for which it toiled.” As in elections in the States, those specialists of eloquence called spell-binders alone have power to weld vast numbers of people together so that they vote as one man, so in the building of the grey dune, only those plants which can hold the sand which the wind heaps up about them may act as sand-binders. Easily first among British sand-binding plants is the Marram Grass or Bent (*Amnophila arundinacea*). To it the white dunes owe in the main what slender permanence they have, and on its foundations the grey dune is built.

Truly, the requirements for the performance of the rôle of sand-binder are great. The plant must be a xerophyte, that is, must be fitted by its structure to withstand the dryness of the upper zone of the sea beach. It must be indifferent to large amounts of salt, which, as those who use that substance as a weed-killer know, is deadly to many Grasses as well as other

plants. It must have dense masses of runners underground, in the meshes of which the shifting sand is imprisoned. It must be strong as strongest cord to resist the strain which the loose heaps of sand above may bring to bear upon it. Above all it must possess the capacity which saves it from being buried alive. Though a ton of sand fall upon it, covering it to the depth of many inches, or even feet, the plant must be able to grow in length till the spear-like tips of its rhizome emerge triumphantly from the depths into the light of day. All these qualities the Marram Grass possesses, and by virtue of them it has become the pioneer of the grey dunes. Between it and the wind a ceaseless struggle wages, and victory leans now to one and now to the other. Prime among the factors which decide the campaign are the presence of other vegetable allies of the Marram Grass. One, the importance of which is more considerable than is generally supposed, is the Sea Thistle, *Eryngium maritimum*. Its fleshy root possesses almost unlimited powers of growth, and when a dune is cut through the brown roots of this plant may be seen extending vertically downward as much as 10 feet from the surface. Nothing is more instructive than the sight of such a section of a dune. The sides of sand are held firm by the dense mass of runners of the Marram Grass, and at the bottom of the cutting the upstanding roots of the Sea Thistle reveal the warp on which the web of Marram Grass was strained. And soon, such is the recuperative power of dune-plants, tops of the cut-off Sea Thistle heal their surfaces, form buds, and grow again to serve as a scaffolding to support the building of the dune. Other plants which aid the growth of the dune are such woody plants as the Creeping Willow (*Salix repens*), and even inconspicuous plants like the Rest Harrow (*Ononis spinosa*) and the little Burnet Rose (*Rosa spinosissima*). The Sea Buckthorn (*Hippophae rhamnoides*), once established on the dune, does yeoman service in the cause of conservation. Lastly, when the dune is grey, the Gorse, the Heather and the Ling make their appearance, and the Gorse crowns the dune and the sandy coast for miles with a crown of gold in spring-time as a token of the subjection of the sand to the beneficent rule of plants.

We have no space here and now to recount the fascinating story which Professor Bower tells of those neighbours of the sand dunes, the golf links; suffice it to say that Professor Bower is by domicile a Scot, and when he writes of golf links has nothing to say of those spurious imitations, the inland courses, but confines, at all events, his botanical study of the links to those where the sea sand beneath the fine grass of the fairway makes a cushion for the feet and a perfect lie for the ball, where the Bents of Marram lurk to hold the sliced or pulled ball as firmly as they hold the sand, and where anyone who fozzles a shot may attribute it to the noise made by the sea clamouring to break the lines of the dunes.

* *Plant Life on Land*, Cambridge Manuals of Science and Literature, by E. O. Bower, F.R.S. 1s. (Cambridge University Press.)

NEW OR NOTEWORTHY PLANTS.

POTENTILLA VEITCHII, E. H. WILSON, n.sp.*

This is an evergreen shrub, growing 3 to 5 feet high, with very much the general aspect of *P. fruticosa*, from which, however, its pure white flowers amply distinguish it. From *P. davurica* Nestl., which has white flowers, it is even more distinct, and does not in any way show the close dwarf growth so characteristic of that species. In a broad sense, the three may be regarded as extreme forms of one species, but for purposes of convenience it is best to distinguish them under separate names, especially as *P. Veitchii* will shortly be distributed.

This new *Potentilla* was introduced by me in 1930 to Messrs. James Veitch & Son's Coombe Wood Nursery, where it flowered for the first time in 1902. In 1907 I sent plants to the Arnold Arboretum. In a wild state, *Potentilla Veitchii* is common in the upland thickets of Western Hupeh and Szechuan, above 6,000 feet altitude. It inhabits open, rocky situations, fully exposed to the sun and is remarkably floriferous. Though the plant is at its best in the early summer, it flowers continuously from early May on to late autumn, producing sprays of snow-white flowers raised well above the grey-green foliage. This new *Potentilla* is altogether a charming and attractive plant.

LONICERA NITIDA, E. H. WILSON, n.sp.†

Mr. A. REHDER, in his valuable *Synopsis of the Genus *Lonicera**, published by the Missouri Botanic Garden in 1903, has, at p. 76, made this bush Honeysuckle a variety (var. *yunnanensis*) of *L. pileata*, Oliver. But in habit and leaf characters it is so very distinct from *L. pileata* that the more convenient course of giving it specific rank seems desirable.

The general aspect of *L. nitida* suggests a small-leaved, evergreen Privet, and it was originally named *L. ligustrina*, var. *yunnanensis*, by Franchet. With this Indian species it has little in common, and since there is already a climbing Honeysuckle named *L. yunnanensis*, it is necessary to adopt an entirely new specific name. *L. pileata* is a fluviatile shrub, almost prostrate in habit, with horizontally-spreading branches, and is common at low altitudes in Hupeh and Szechuan. *L. nitida* is an erect-growing plant, with more slender shoots, much smaller, thicker and more rounded leaves. It is found in Szechuan and Yunnan at higher altitudes than *L. pileata*, and is certainly a harder plant.

Kew Herbarium possesses specimens, collected in Yunnan by MM. Duleaux and Bodinier, which seem identical with our plant, but there is no reference to the habit of the plant. The specimens collected by Père Soulie and Delavay have larger leaves, and rather suggest a plant with horizontal habit.

Lonicera nitida has been distributed from the Arnold Arboretum into several gardens from plants collected by myself. In this country specimens are growing at Kew Gardens, Coombe Wood Nursery, Aldenham House and Warley Place.

The name *nitida* has reference to the brilliant gloss on the upper surface of the leaves.

* *POTENTILLA VEITCHII*, E. H. Wilson, n.sp.—An evergreen shrub, 8.5 feet of neat, rounded habit, young shoots clothed with pale silky hairs; leaves pinnate, including petiole $\frac{1}{2}$ to 1 inch long; leaflets 3-5 inch, sessile, oval, both long, greyish-green above, somewhat glaucous beneath, with short, prostrate with silky hairs. Flowers usually solitary at the ends of short twigs, pure white, $\frac{1}{2}$ to $\frac{3}{4}$ inch across; petals broadly obovate, peduncle and calyx silky.

W. Hupeh, 6,900 feet. Wilson, Nos. 2,062 and 2,187, in Herb. Kew. Seed No. 1,087, Veitch.

† *LONICERA NITIDA*, E. H. Wilson, n.sp.—Evergreen shrub 3.6 feet high of very neat, even dainty, habit; branches erect, densely leafy, when young purplish, clothed with short, prostrate with silky hairs. Leaves coriaceous, ovate with a sub-cordate base, polished dark-green above, very pale beneath, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, obtuse; petiole $\frac{1}{4}$ inch long, furnished with minute bristles; a few small, scattered, ultimately deciduous bristles on the upper surface of the leaf and on the midrib. Flowers in pairs, creamy-white, fragrant. Fruits globose, the size of a large pea, blue-purple and ornamental. W. Szechuan, 4,500-7,000 ft. Wilson, No. 833 in Herb. Arnold Arboretum.

This character and the habit render the new plant one of the most distinct of all bush Honeysuckles. E. H. Wilson.

PRIMULA GAGNEPAINII.

PRIMULA GAGNEPAINII (see fig. 47) belongs to the "cortusoides" group of Primulaceæ found in Western China, which includes *P. Veitchii* and *P. lichiangensis*, both recent introductions from that region. Whilst similar in general habit, it differs from these two species in having more orbicular, seven lobed leaves, the lobes being coarsely toothed and lobed. The foliage is also somewhat thinner in texture than in the others. The hairy petioles are about 3 inches long, and the leaf-blades about 3 inches in diameter. The sepals are some 6 inches long,

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT THE DELL, EGHAM.

ALL interested in Orchids will be pleased to know that Baron Bruno Schröder is maintaining the famous collection of Orchids at The Dell, Egham, and that he is adding choice plants as opportunity occurs. Under the care of Mr. J. E. Shill, the future success of the collection is assured, and a recent visit showed that great progress has already been made, especially with the superb collection of blotched forms of *Odontoglossum crispum*, and in the raising of hybrids.

In the *Odontoglossum* houses, reminders of the rise of the popularity of *Odontoglossums* are seen in some of the earlier forms acquired by the late Baron Schröder. Many of these have received



[Photograph by W. Irving.]

FIG. 47.—*PRIMULA GAGNEPAINII*: FLOWERS VIOLET-PURPLE.

and bear an umbel of violet-purple flowers very like those of *P. lichiangensis*. There is, however, a marked peculiarity in the calyx, which in *P. Gagnepainii* tapers gradually to the base, whilst in the others it has a distinct bulbous appearance. Mr. E. H. Wilson sent seeds from China to Miss Willmott. Plants at Warley Place flowered freely out-of-doors, and survived the winter in the open in sheltered positions. The flowers vary in colour, some being pale with a lighter eye, whilst others are dark purple with a darker zone near the mouth of the tube. The specimen shown in fig. 47 is growing in a pot and flowered in May, lasting in a good condition for a considerable time. Like *P. cortusoides* it is an easy subject to cultivate. The plant is a perennial, and may be increased by means of division in the spring or from seeds, which are produced freely. W. I.

Awards at meetings of the Royal Horticultural Society. Noteworthy were *O. crispum apium*, which received a First-class Certificate in 1886, and which, in its day, held the record for high price; *O. c. Ballantinei* (1834), *O. c. Dellense*, *O. c. nibilium*, *O. c. Rex*, *O. c. Truffautianum*, *O. c. Veichianum*, *O. c. Baroness Schröder*, *O. c. Black Watch*, *O. c. Pittianum*, *O. c. Harold*, *O. c. Starlight*, *O. c. Princess Victoria*, *O. c. Oakfield Sunrise*, and, among recently-acquired novelties, several plants forming the entire stock of the very remarkable *O. c. Dell Sunrise*, of the same class as *Oakfield Sunrise*, but with flowers of waxlike substance, circular in outline, broad, and well rounded in all the segments, and of a pure white, with a very pretty arrangement of small purple markings inside the margins of the petals. The plants of the celebrated varieties of *Odontoglossum Pescatorei* for which the

collection is noted, viz., *Schröderianum*, *Veitchianum*, and *Sanderre*, are thriving, and among other remarkable *Odontoglossums* were *O. Memoria Baron Schröder*, *O. illustrissimum*, the fine and richly-coloured *O. mirum* "The Dell variety," *O. ardentissimum* *Ebor*, and many other fine novelties which have not yet been exhibited. In several of the houses store pots of seedling *Odontoglossums*, uniformly arranged, and in a perfect condition of health, promise to provide interesting novelties in the near future.

In a moderately low, intermediate house, the forms of *Miltonia vexillaria* were observed in a good condition, the plant of the variety *Memoria G. D. Owen*, which at one time gave trouble, being now well established; also *M. v. superba*, *M. v. Leopoldii*, and other good forms. With these was a fine selection of *M. Bleuana*, also some rare forms of *M. Hyeana* and *M. St. Andre*.

In the same range of glasshouses were many pretty *Cypripediums* and *Calanthe Tracyna*, of the *C. veratricifolia* section, about which little is known. It was shown at the Royal Horticultural Society, May 14, 1889, and received a Botanical Certificate, this being the original plant. The flowers are white, with a pale mauve tint. In the large *Cattleya* house were a few specimens of *Cattleya Gaskelliana* and others in flower, also the always-attractive *Bulbophyllum barbigerrum*, and, suspended overhead, several fine plants of the rare and pretty *Mormodes luxata eburnea*, some of them with strong flower-spikes about to expand their blossoms. This plant is reputedly a very difficult subject to cultivate, and specimens have been lost in many other collections; but at The Dell it has always grown and flowered well, and a considerable stock has been obtained by division.

Amongst a fine batch of *Cattleya Schröderæ* was a strong plant of the handsome *C. Schröderæ* The Baron; forms of *C. Mossia*, some of the plants with six leading growths, and other kinds in a proportionately good condition, there being in each section a set of albinos. The original specimens of the *Veitchian hybrids*, *Lælio-Cattleya Bella*, *L.-C. Canhamiana*, *L.-C. callistoglossa*, *L.-C. Dominiana*, and others were included in The Dell collection many years ago, and it is interesting to see that the plants are still vigorous. Others noted were *L.-C. Sibyl*, *L.-C. Bella alba*, and *L.-C. Golden Glory*.

Of a very rich collection of hybrids of *Brassavola Digbyana* the white *Brasso-Cattleya Queen Alexandra* was in flower. Amongst the most cherished and handsome Orchids in the collection are *Brasso-Cattleya Baroness Emma* (*C. Hardyana* × *L.-C. eximia*) and *B.-C. King of Spain*, both perfect in shape, and of a charming colour. A batch of *Cattleya Dowiana*, some extra fine specimens having eight or ten leading growths, should make a fine show in their season.

In the warm house, a considerable number of plants of *Calanthe Baron Schröder*, raised at The Dell, are making very large pseudo-bulbs. In a low, intermediate house, the collection of varieties of *Lælia anceps* are vigorous, and sending up their flower-spikes. In other houses are many plants of hybrid *Cattleyas*, *Lælio-Cattleyas*, and *Brasso-Cattleyas* in various stages of growth. The plants in the collection of *Dendrobiums* are forming good growths, and satisfactory progress is evident in every direction.

The old glass houses, which have hitherto accommodated the collection, are being replaced, at some distance from the present block and in a suitably sheltered position, by a new range of modern houses, erected by Messrs. Duncan Tucker & Sons.

There are three ranges, the central one being the broader and loftier, and they include a special house for the raising of seedlings. To admit of a free circulation of air, spaces 12 feet in width are allowed between the ranges. A very large tank is being made for the storing of rain-water; when completed, this will be covered by earth, and

form a central source from whence all the tanks in the houses will be replenished.

Two sectional White Rose boilers, of the Robin Hood class, are installed for heating the houses. Close by are new bothies for the young gardeners, containing everything for comfort. *B.*

THE MARKET FRUIT GARDEN.

A RECORD JULY.

FOR sunshine, heat, and drought, so far as memory can be trusted, the past month stands as a record for July, at least in my own district, and in many others, including some of the most important fruit centres, where the conditions appear to have been similar. While showers or storms were reported from northern and western counties, and even as far south as London, great areas of the country were missed by the rains. At my own station the register shows absolute drought for the first three weeks of July. In the night of the 24th there was a fall of 0.08 inches, the effects of which entirely disappeared in a few hours. After that sprinkling we had no rain until the tail of a somewhat distant thunder-storm in the evening of the 29th gave us 0.20 inches, a quantity entirely useless for fruit crops. Further the records show "sunny and warm" or "sunny and hot" for all but three days, and even these were only partly overcast. As a rule, the sun blazed forth from its rising to its setting. I do not keep a record of temperature, but noticed 94° in the shade as having been reached at least once, and 84° to 88° on two or three occasions.

RESULTS.

So far as fruit-growers are concerned, there are two results of the hot drought, absolute or conjectural. That the sizes of Plums and Apples have been seriously reduced by the weather is unfortunately obvious, while the conjectural result is such a ripening of young wood and fruit buds as has rarely been known. The only drawback to the latter result is the almost leafless condition of great numbers of Plum and Apple trees reported from some of the principal fruit districts. My own Plum trees are not devoid of leafage at present, though the foliage of three of the principal varieties is brown from the effects of aphid and red spider infestations, and the only variety of Apples showing unhealthy foliage is one that has been badly infested with red spider. But I read and hear of orchards of both fruits badly defoliated, and this condition may possibly neutralise the effect of the sunshine and heat in reference to the development of fruit buds for next season's crops. Frequent horse-cultivation and hoeing have done much, by creating what Americans call a "dust mulch" on the surface of the land, to retain moisture in it a few inches below the surface, while frequent sprayings have kept down the damage threatened by insect pests. Consequently the wood growth of Apple trees now in their second and third years from the planting, as well as that of trees in their fifth and sixth years, is excellent. This is mentioned because some reports refer to a heavy mortality amongst young trees as having taken place in some districts. Still, Apples on even young trees are below an average size, and they are very much less on mature trees, particularly in the case of an orchard of three acres under grass, in which the fruit is not more than half its usual size. In this respect Plums have suffered even more than Apples, half size being the rule at present. Whether a thorough soaking of the soil now would be in time to cause late Plums to swell or not is doubtful. Probably the latest Apples would swell to some extent, but not greatly, it is to be feared, because premature ripening is taking place. It might prevent among late Apples the extraordinary dropping of fruit noticeable in early varieties. Beauty of Bath is always

a bad offender in this respect; but no approach to the wholesale dropping of this variety has taken place in any previous season in my experience. When all the dropped Apples were picked up on one day, the ground was strewn with them again on the following day. It was chiefly the green and slightly-coloured fruits that dropped. Other varieties, as they approach ripening, are also dropping more or less badly. This is a great loss, because it means that a large proportion of the crop has to be sold at windfall prices, and that in a season almost devoid of strong winds.

FRUIT CROP ESTIMATES.

In reading the estimates of the fruit crops in this journal two questions have presented themselves to me insistently. The first is as to whether the estimators have allowed sufficiently, if at all, for the deficiency in the sizes of the fruits and the excess of dropping; and the second is whether the crops in gentlemen's orchards and gardens are not much better than in commercial orchards. These questions relate chiefly to Plums and Apples. Reports from the principal Plum districts and market prices alike indicate a Plum crop much below the average in market plantations. The verdict as to Apples is less certain; but, bearing in mind the extraordinary deficiency in size, the profuse dropping, and the small crops on young trees of many varieties, it seems to me doubtful whether the weight of this fruit to be marketed will be as large as usual. The number of fruits may be well up to or even above the average; but when two Apples weigh no more than does one in a good season, number does not settle the question of yield. Another point is that, in order to obtain a correct impression as to the fruit crops from estimates, the acreage of fruit in the several counties has to be considered. In other words, each estimate from Kent, Middlesex, Herefordshire, Worcestershire, or Cambridgeshire in relation to fruit to be marketed has a value three or four times as great as one from Bedfordshire, Leicestershire, or Oxfordshire. The great cider Apple counties do not rank in proportion to acreage in connection with market supplies; but accounts are to the effect that there is one of the poorest crops of cider Apples grown for many years. As to small fruits, the prices realised for Gooseberries, Black Currants, and Raspberries indicated a great deficiency in market plantations; but Gooseberries in sheltered gardens bore large crops, and red Currants had splendid crops. With respect to quality, Apples and Pears are much less affected with scab than usual, at any rate where they have been sprayed. Early Plums are described in some cases as "but little more than skin and stone." This is an exaggeration, but the proportion of dwarfed and misshapen fruits is very large. The thick crop of Early Prolific Plums in course of being gathered in my plantation at the time of writing is one of fruits only about half the normal size, and later varieties, for their respective stages of growth, are equally undersized.

SUMMER PRUNING.

This work, so far as mature Apple and Plum trees are concerned, is not attempted by market growers generally, as it needs to be done in the fruit-picking season, when all hands are busy with what is regarded as more urgent work. The opinion that it is valuable mainly for keeping the interior portions of the trees open to sun and air has been expressed previously in this column, and for this purpose it is important for trees of any age which produce new wood freely. As for young trees, summer pruning is absolutely necessary for their best obtainable development, and for some weeks I have been engaged on the work among Apple trees two and three years old from the planting. By the cutting out of surplus growths the young branches left have the vigour of the trees concentrated upon them, while the wood has a better chance of ripening properly. With such young trees clean cutting-out is much more practised by me than spurring, as the great

desideratum is the furnishing of the trees with strong branches just sufficient in number to make good frameworks of symmetrical shape, the interior of each tree being kept well open. The laterals of some varieties are spurred, while internal growths of others are nearly all cut off entirely in my practice. All depends upon whether a variety is of a thin or dense habit of growth.

early spring) pruning. Everyone of the internal side-shoots was cut off cleanly, the young branch, of course, being left at its full length for the present. Possibly, but not certainly, such a branch may be shortened at the next winter pruning. It will be understood that these remarks apply to young trees. In older ones there is often room for more in-

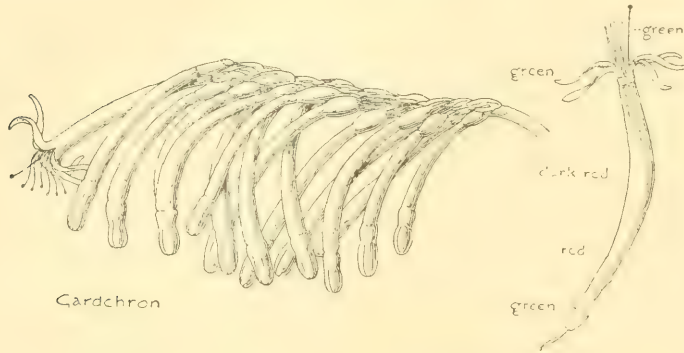


FIG. 48.—*LORANTHUS AMPLEXIFOLIUS*. INFLORESCENCE AND FLOWER.

Such varieties as Bramley's Seedling, Warner's King, and Blenheim Pippin, as they tend to make comparatively few and sturdy branches, with none too many laterals, may be spurred freely; while Lane's Prince Albert, Cox's Orange Pippin, and Allington Pippin will form an abundance of natural fruit spurs without any assistance. The great difficulty with the first and last of these varieties is to induce them to grow branches at once long and sturdy enough in an upward direction, their natural tendency being to produce a mass of slender shoots directed to all points of the compass, but least of all upwards. Allington Pippin is the worst variety grown by me in this tendency to produce a dense mass of slender and misdirected shoots, although it is worse than Lane's Prince Albert only because its

ternal spurs, and short artificial spurs are to be preferred to long natural ones. If a tree is sufficiently well furnished next winter with fairly sturdy branches properly directed, no shortening will be done in the case of this variety. Lane's Prince Albert needs a similar treatment. Both will produce more fruit than is necessary without any artificial spurring. My mature trees of Allington Pippin were not trained in this way, and the consequence is that they are masses of twiggy growths, which produce thick crops of small Apples in one season, and no fruit at all, or very little, in the following year. Domino, Lord Grosvenor, and Golden Spire are other Apples which produce a profusion of natural fruit spurs, and are better without any artificial spurs than with them. The majority of culinary



FIG. 49.—FRUITS OF *LORANTHUS AMPLEXIFOLIUS*.

vigour is so much greater. For this very reason it is more easy to train in a proper form; only cutting out cleanly must be done very severely. In summer pruning some trees of Allington Pippin a few days ago I counted nine laterals as having grown below the point at which a young branch had been shortened at the winter (really the

Apples and the more sturdy of dessert varieties may be spurred freely. Plums, as a rule, require less thinning of the branches than Apples; but young trees need summer pruning nevertheless. It is doubtful whether the spurring of Plum shoots is of much advantage. A *Southern Grower*.

INDIAN LORANTHUSES AND THEIR HOSTS.

THE chief difference between *Viscum*, the true Mistletoe, and *Loranthus* lies in the fact that, while both are parasitic on trees, the Mistletoe sends its haustoria into the tissues of the host, while the *Loranthus* spreads along the branches by runners, which only at intervals send in their suckers or haustoria. Many of the species are, moreover, extremely handsome, with dark-green, yellow or brown foliage and masses of brilliant yellow, scarlet or orange-coloured flowers, and on certain trees the growth is extremely abundant.



FIG. 50.—*LORANTHUS* ON *DODONÆA VISCOSA*.

From this it may be gathered that *Loranthus* is sometimes a very destructive pest. In the low-land scrub jungle of India, valuable in this coal-less country for its fuel, many of the trees are smothered in parasites, and, consequently, are stunted and distorted. On the stately avenues of Banyans along the main roads, great festooning masses of *Loranthus longiflorus* may be noted, but it is in the hill stations that the injurious influence of the parasites is most noticeable. In many parts

of the high mountains the natural "shola" forest, occurring between the grassy slopes in sheltered clumps or gullies, has been largely cut out for firewood, and, but for the introduction of foreign trees in plantations, little of the natural forest would now be left anywhere. Some 50 or 60 years ago large plantations of Eucalyptus and Acacia were laid down, and this has enabled the Government to preserve the remaining sholas with their interesting indigenous trees. But these introduced trees, unaccustomed in their own country to parasitic attacks, have become the natural prey of the different species of *Loranthus* which have of late years increased enormously in quantity. And it is interesting to note that, while the Gum trees are practically untouched, the Acacias or Wattles are everywhere severely attacked. There would appear to be several

Wattle in particular is being literally eaten out, and, although it reproduces itself naturally, it is doubtful whether it will long be able to hold its own. It is, moreover, a grave question whether it should any longer be encouraged on the hills, as all Pear, Orange, Guava, Peach and other fruit trees in its vicinity, besides Tea and Cinchona plantations, are covered by *Loranthus* plants and severely injured.

To the naturalist the study of Indian Loranthaceæ suggests many interesting problems. There is no doubt, for instance, that certain species affect certain hosts. In some parts of the plains the Banyans are the only trees affected by *Loranthus loniceroides*; *Cassia siamea* has been noted in others as the only tree attacked by *Loranthus longiflorus*; where mixed growth surrounds a large Black Wattle, itself impar-

while, in the Nilgiris, *L. neelgherrensis* can only be detected among the Tea bushes on casual inspection by the redder tinge of its shoots. The usually broad-leaved *L. longiflorus*, when attacking the fine-leaved *Albizia amara*, develops narrow, falcate leaves and forms the variety *falcata*, and so forth. These isolated examples are very striking, but until the cause is studied further no definite conclusions may be drawn.

The whole question of the mode of dispersal of the seeds is, here as elsewhere, of great interest. From observations made in Brazil, it appears that the birds squeeze the seed, covered with the sticky endocarp and swallow it, rejecting the outer fruit coats. But, while large birds pass the seed through their bodies, smaller ones are accustomed to reject the seeds through their mouth when the sticky food has been partly digested. There appear to be many birds in India responsible for the distribution of *Loranthus* seeds, but prominent among them, from the highest mountains to the hot plains, is the bulbul, and observations have still to be made as to the exact procedure adopted by different birds. For those who wish to prosecute this line of study it may be interesting to know that the base of the seed contains certain marks, caused by the entry of the vascular bundles, by which any seed may be certainly referred to its species, and by collecting birds busy on the trees and emptying their stomachs the connection between bird and parasite can be at once determined.

The germination of the different forms of *Loranthus* presents some very interesting features. In many, the young seedling is enclosed by a transparent mass of gum, within which, in dry weather, the green leaves may be seen like "fruits in aspic," an excellent protection from drying-up until the direct connection with the host's water supply has been made. In *L. neelgherrensis* a definite species of fungus grows on this gum, and has not been found elsewhere. The runners are characterised by large numbers of lenticels or air-holes, and a study of these has shown that their arrangement differs with the different species, while, by a study of their structure under the microscope, many species may be readily recognised. These are a few of the problems which confront the naturalist interested in this group, and add zest to the otherwise uninteresting collection of plants for the herbarium.

THE ROSARY.

THE RUGOSA ROSES.

He who would have Roses in May should plant Rugosas, and not singly or dotted as a single plant here and there, but in hedges and surrounding the lawn or the Rose garden. Over a number of years they will vary but little in their time of flowering which generally begins on May 23 or 24, and from that time, being true perpetuals, they will continue with only a break in early July (when we can spare them) until autumn reddens their fine fruits, which remain to brighten the garden as long as the birds will allow them.

They are also delightfully fragrant, so much so that they will scent the air of the garden, and one at least, Mme. Georges Brunt, has a Sweetbriar scent in the foliage. It is a red hybrid Rugosa, Rose à parfum de l'Hay, that Mons. Jules Graveraux has, after many experiments, selected as the most fragrant of all Roses from which to make Rose perfume. Two of the earliest are *Thunelda* and *Blanc Double de Coubert*, though this year they were preceded by one day by *America*. *Thunelda*, once aptly described by Mr. G. L. Paul as "the first and the last Rose in flower," is a very pale, flesh-coloured variety, very full of petals, and very free in flowering. Some, like *Blanc Double de Coubert*, begin to flower again (though sparsely at first) almost before the first blooming is over, while a few, like *Conrad F. Meyer*, *Carmen* and



FIG. 51.—TREES OF ACACIA MELANOXYLON DESTROYED BY LORANTHUS.

reasons for this immunity of the Gum trees. In the first place, their lower branches are cast off in succession, sometimes loaded with germinating *Loranthus* seeds; in the second, the bark is constantly shed throughout the life of the tree and hangs in long strips, making it difficult for the *Loranthus* to lay hold, and, lastly, there is less temptation for birds to seek shelter under the open, straggling foliage. By their enormous growth the blue Gums are soon raised above the horizon of the smaller birds of the forest, but the Acacias, and especially the handsome *Acacia melanoxylon*, the Black Wattle, affords to birds a safe retreat after feeding in the recesses of its dark-green foliage. The Wattles are amongst the most beautiful trees on the hills. *Acacia melanoxylon* because of its shade and foliage and the bluer-coloured *Acacia decurrens* because of its masses of light and dark-yellow flowers. Both trees become infested with parasites. The Black

ally attacked by all the species of the neighbourhood, *L. cuneatus*, *L. neelgherrensis*, *L. intermedius*, and *L. tomentosus*, we find *Symplocos opicatus* harbouring *L. intermedius*, *Cinchona* only attacked by *L. neelgherrensis*, and *Dodonaea viscosa* only by *L. cuneatus*, while *L. tomentosus* has no special host. There are many cases, again, of *Loranthus* fixed on other species of the same genus, parasite on parasite, and one species of *Viscum* is hardly found at all, excepting on *Loranthus longiflorus* var. *falcata*. Then again there is the interesting speculation as to whether the kind of host affects the morphological development of the parasite, the leaves of the latter in some degree simulating the former. It has been shown that in an Assam Tea garden *Loranthus longiflorus* had leaves so like those of the Tea plants that they were regularly collected by the pickers with the Tea leaves, and imparted a curiously bitter taste to the Tea,

others, have distinct flowering periods, separated by times when there are no flowers on the plant. Mme. Anelet, a very vigorous grower, is rather a shy bloomer, but the majority of Rugosa Roses flower well, and more or less continuously.

The Rugosa Rose came from Japan about 100 years ago, where, according to Lindley, it was known as the Ramanas Rose, but Lindley knew it only from Thunberg's description, which he found difficult to distinguish from that of *R. ferox*, the Hedgehog Rose. For garden purposes, at all events, the two have little in common save their hardness. The Rugosa is one of the hardest of all Roses, and its strong foliage allows it to flourish in the most exposed situations, so that it does well, even near the seaside. Unlike our native Dog Roses the Rugosas are not lovers of the clay, and flourish best where the soil is light and sandy, and I have seen them doing well in chalk districts.

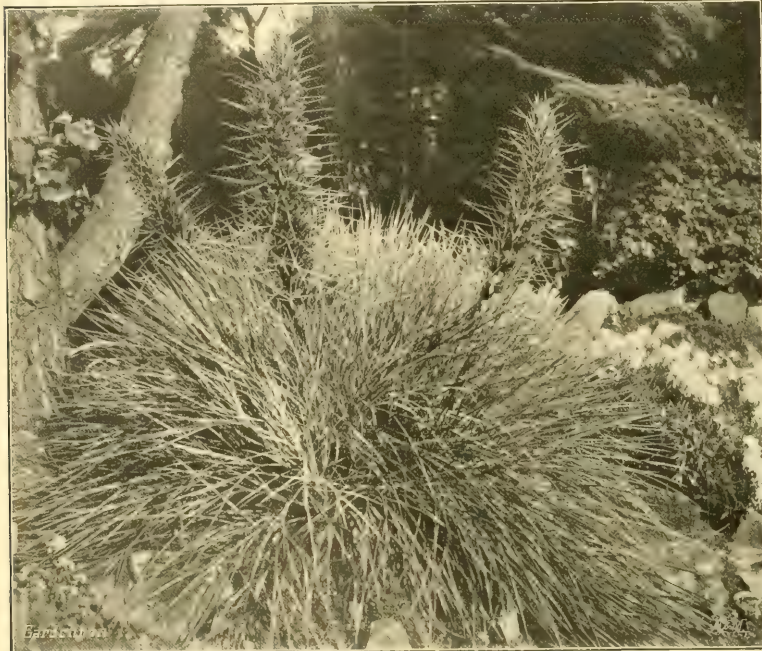
Although they were introduced so long ago and seed so freely it was long before any great

Morlet produced *Fimbriata*, a nearly single Rose; the petals are white-tinted blush, and fringed at the edges like a Pink. The flowers are both pretty and distinct. In 1892 Cochet gave us *Blanc Double de Coubert*. This is still the best white form. The flowers are pure white, carried in clusters and semi-double. The variety blooms early and constantly; during the autumn fruit and flowers may be seen on the same bush. In the same year Nabonnand produced *Comte d'Epresmesnil*, a variety with double flowers of a not very pleasing violet-lilac shade, and Messrs. Paul & Son obtained a variety named *America*, with large, open flowers, something the colour of crimson-lake. I believe Mr. G. L. Paul told me this Rose was sent to his firm by Prof. Sargent. *Atropurpurea*, the best red variety, appeared in 1899; the flowers are deep marooned. Then, at the close of the century, appeared *Conrad F. Meyer*, the most distinct advance in hybrid Rugosas. It was obtained by crossing an unnamed Rose, the progeny of *Gloire*

Jacqueminot and *R. damascena* with *R. rugosa*; and Mrs. Anthony Waterer. In 1909 a fresh break appeared in *Daniel Leseuer*, a Rose with a distinct shade of yellow. From its habit it would appear to have *Gloire de Dijon* among its ancestors. The flowers are a pale, pinkish-yellow, the buds being a coppery-pink. They are well shaped, large, full and often beautiful. This variety also is constantly in flower. The habit of the plant, however, is rather straggling.

Of the varieties I have tried myself the following seem to me to be most worth growing:—*White and Blush*, *alba*, *Blanc Double de Coubert*, *Fimbriata*, *Mme. Georges Bruant*, *Nova Zembla*, and *Repens alba*; shades of pink: *Bienvêtu*, *culcarpa* (for its berries), *Conrad F. Meyer*, *Delicata*, *Mme. Ballu*, *Mme. Lucien Villeminot*, *Mercedès*, *Thunelda* (one of the best); Reds: *atropurpurea*, *Carmen* (bright and pleasing), *Le Cid*, *Mrs. Anthony Waterer*, *Rose à parfum de l'Hay*, *Souvenir de Pierre*, *Leperdrieux* (the last two are specially fragrant); Yellow: *Daniel Leseuer*.

The two faults of the Rugosas are that as a class the doubles are rather wanting in form, and they do not last well in water when picked. From the former defect *Conrad F. Meyer* and *Daniel Leseuer* are exceptions, so this may be remedied in time, but until the habit of drooping when picked and put into water is remedied we must regard them rather as Roses for the garden than for the dwelling room. *White Rose*.



[Photograph by C. F. Ball.]

FIG. 52—*ACIPHYLLA SQUARROSA* GROWING IN GLASNEVIN BOTANIC GARDENS.

advance took place. Thunberg seems to have introduced two forms; the first was the type, *Rugosa rubra*, which, at least as we now know it, appears synonymous with the form known as *Regeliana* (a view which has Crépín's authority), and perhaps also with *himalayensis*. The second was *Rugosa alba*, a white form. Towards the end of last century, however, some new varieties appeared. *Helvetica*, a form with trusses of white flowers, must have been one of the earliest, but I have been unable to ascertain the date. In 1857 came *Mme. Georges Bruant*, also white and semi-double, the flowers being produced more or less singly. It was a cross between Thunberg's *Rugosa* and the *Tea Rose Som-breuil*. From this point the tide of production began to flow. Three years later Dr. Müller obtained a variety, *Germanica*, which, though it seems to be lost to cultivation in this country, was the parent of many of the modern Rugosas. The next year, 1891, as the result of a cross between *Mme. Alfred Carrière* and *Rugosa* (type),

de Dijon and Duc de Rohan with *Rugosa germanica*. It is an extremely vigorous Rose, throwing up great shoots 8 feet high, densely armed with numerous prickles, which are persistent, and seta, which fall in the autumn. The foliage is large, dark-green, and strong, but unlike most of the Rugosas it is somewhat subject to mildew. The flowers are large, satiny-pink, with silvery-pink edges, well shaped and delightfully fragrant, but they do not last long as cut blooms.

Conrad F. Meyer has given rise to two sports, *Nova Zembla*, white or nearly so, and often good, and *Mme. Lucien Villeminot*, of a soft pink colour, which I prefer. It is rather more free-flowering than its parent, but not so thorny, and, though the flowers are not well shaped, their colour is, I think, very pleasing.

The number of the hybrid Rugosas is now considerable. Two of them have General Jacqueminot blood, *Rose à parfum de l'Hay*, obtained by crossing a seedling from General

ACIPHYLLA SQUARROSA.

THIS remarkable plant (see fig. 52) belongs to the natural order Umbelliferae, and is popularly known as the Bayonet plant. Each segment of the crowded mass of leaves bristles with a spear-like point, and in New Zealand it is said to form impenetrable thickets in sub-alpine districts. It is a decorative plant, and on bold rock-work, or as an isolated specimen, it makes a suitable evergreen plant all through the year. *A. squarrosa* is of very dense growth, making a mound of greyish leaves from 2 to 4 feet through. The radical leaves are 2 to 3 feet long, and two or three times pinnate. The leaflets are linear, not more than a $\frac{1}{2}$ inch broad, deeply striated, stiff, and leathery. The inflorescence is a queer-looking, spiny spike, about 4 feet high, composed of numerous umbels springing from the axils of spiny bracts. The bracts vary from $\frac{1}{2}$ to 1 inch broad; they are yellowish and sticky, tipped with three to five rigid spines, the middle one being the longest. The flowers are small and not showy. The plant figured is a female specimen; the male plant has a more spreading panicle.

The plant is apparently only propagated from seed, which is difficult to obtain in this country. Some say the *Aciphylla* dies after flowering, but this is not always the case; at Glasnevin, by cutting out some of the flower-spikes, the plants are retained, and, when in good health, they will live for many years, but do not flower annually.

The flower-stems are hollow, and have the characteristic Umbellifer smell. Both *A. squarrosa* and *A. Colensoi* yield an aromatic gum resin which was formerly used by the Maoris as a masticatory. *A. Colensoi* has broader leaves of a brownish colour, but at Glasnevin it has not formed so large a plant as *A. squarrosa*. Another species, *A. Traversii*, flowered this June at Glasnevin, throwing up a flower-spike about 2 feet high with greenish flowers. The leaves are not so rigid and are plain green, with curious, transversely-jointed leaf segments. It was raised from seeds obtained from New Zealand, but, although interesting, it is less interesting than *A. squarrosa*. The genus, except for two species which are found in the Australian Alps, is confined to New Zealand. The fruits are linear oblong in shape, rather like those of *Ligusticum*. C. F. Ball, Royal Botanic Gardens, Glasnevin, Dublin.

THE FLOWERS OF CHAUCER.

(Continued from page 84.)

IVY.

1. He may go pypen in an ivy leef.
Knights Tale, I. 147.
2. Of erbe yve that groweth in our yerd, that
mercy is.
Nonne Prest his Tale, III. 220.
3. Pipe in an ivy leef, if that the leste,
Troilus and Cryseyde, VI. 37.

Chaucer reckons the Ivy among medical plants, a virtue it has long lost; but the use of an Ivy leaf in the mouth as a musical instrument is still not uncommon.

LAUREL.

1. Hom he ryt anoon
With laurer crowned as a conquerour.
Knights Tale, I. 121.
2. Upon his heed he wered of laurer greno
A garland freisch and lusty for to sene.
Ib. 159.
3. Eke on his heed a croune of laurer greno.
Ib. 160.
4. Box, chesteyn, lynde, laurer.
Ib. 182.
5. Al my lymes ben as greene,
As laurer thurgh the yeer is for to seene.
Marchaundes Tale, II. 169.
6. Lauriol, century, and fumytore.
Nonne Prest his Tale, III. 220.
7. The victor palme, the laurer, to, divine.
Assembly of Fowles, IV. 195.
8. At the laste I gan ful wel aspy
Where she sat in a fresh grene laurer tree.
Flower and the Leaf, IV. 240.
9. Chapelets . . . some of laurer.
Ib., IV. 242.
10. Chapelets newe made of laurer greno.
Ib., IV. 246.
11. And on their heddes, wel
Dressed, were crounes of laurer greno.
Ib.
12. Boughes shene,
Some of laurer.
Ib.
13. The nightingale, that al the day
Had in the laurer sate
Ib. 253.
14. Alle they that of laurer chapelets beane.
Ib. 255.
15. Forth they yede
Unto a faire laurer that stood fast by.
Ib. 248.
16. The precious laurer so notable.
Ib. 256.
17. And ferst to se the holy laurere quake.
Troilus and Cryseyde, V. 134.
18. Dane her self shet
Undur the bark, and lawrer wax for drede.
Ib. 141.
19. The laurer-crowned Phebus. *Ib., VI. 26.*
20. Under the laurer, which that may not fade.
Queen Anelyde and Emelys Tregh, VI. 180.
21. (Theseus) Laurer crowned in his chare.
Ib. 181.
22. With his tryumphe, and laurere crowned
thus.
Ib.
23. Thou shalt se me go as blyve
Unto the next laurer I see,
And kysse hyt, for hyt is thy tree.
House of Fame, VI. 229.
24. And loken on these faire loreries.
Romaunce of the Rose, VII. 57.
25. With many high lorey and pyn. *Ib. 59.*
26. I sawe the Daphne closed under rynde.
Complaynte of a Loves Lyfe, VIII. 8.

In all these passages the Laurel is the Bay; the tree into which Daphne was changed and the crown of conquerors. What we now call Laurel was introduced into England many years after Chaucer, and was rightly called the Cherry Laurel, being not a Laurel but a Cherry.

LEEKS.

1. Wel loved he garleek, cynouns, and ek
leekes.
Prologue, I. 103.
2. To have an hoor heed and a greene tayl,
As hath a leek.
Prologue of the Reeve, I. 217.
3. I hold a mouses hert not worth a leek.
Prologue of the Wyf of Bath, II. 62.
4. Every man that holt him worth a leek.
Marchaundes Tale, II. 165.
5. And othere suche, deere y-nough a leeke.
Prologue of the Chanounes Yeman, III. 32.
6. Ful sade and caytif was she eek,
And al so grene as ony leek.
Romaunt of the Rose, VII. 80.
7. Sich love I preise not at a leke. *Ib. 165.*
8. If he be a nygard eke,
Men wole not sette by hym a leke.
Ib. 182.
9. Though they die, they sette not a leke.
Ib. 193.

LICORICE.

1. Clowe-gelofre, and lycorice.
Romaunt of the Rose, VII. 58.
 2. Ther springen herbes greet and smale,
The licorys and the cetevale.
Tale of Sir Thopas, III. 119.
- As Chaucer reckons Licorice among growing trees and herbs, I must give it a place.

LILY.

1. Emelie, that fairer was to seene
Than is the lillie on hire stalkes grene.
Knights Tale, I. 121.
2. An eglet tame, as eny lylie whyt. *Ib. 159.*
3. Thou with thi garland, wrought with rose
and lylie,
The mene I, mayde and martir Cecilie.
Secounde Nonnes Tale, III. 7.
4. (Cecilie) it is to say on English, hevenes
lilie.
Ib. 9.
5. Of good fame
The soote savour, lillie was her name.
Ib. 10.
6. This angel had of roses and of lillie
Corounes tuo. *Ib. 13.*
7. And whan that he the savour undernom,
Which that the roses and the lilies cast.
Ib. 14.
8. Whennes this soote savour cometh so
Of rose and lilies, that I smelle her.
Ib. 14.
9. In laude as I best can or may
Of the and of thy white lily flour.
Prioresses Tale, III. 108.
10. Over that his cote-armour
As whyt as is a lily flour.
Tale of Sir Thopas, III. 124.
11. Upon his crest he bar a tour,
And therein stiked a lily flour. *Ib. 127.*
12. His nayles whitter than the lily flour.
Nonne Prest his Tale, III. 217.
13. And lily forehede this creature.
Court of Love, IV. 159.
14. The lillie wexith, white, smoothe, and soft.
Troilus and Cryseyde, V. 50.
15. As whyte as lylie or rose in rys.
Romaunt of the Rose, VII. 46.

The Lily of Chaucer, as of all other writers of his day, is, without doubt, the pure white Madonna Lily.

LIME.

1. Chesteyn, lynde, laurer.
Knights Tale, I. 182.
2. To seke Gamelyn under woode lynde.
Cokes Tale of Gamelyn, I. 260.
3. Be ay of chier as light as lef on lynde.
Clerkes Tale: Envoye de Chaucer, II. 160.
4. Fyne ew, popler, and lyndes faire.
Romaunt of the Rose, VII. 69.

Line or Linden was the English name of the Lime tree from the earliest times. The present name Lime does not occur in English literature before Dryden.

LUNARY.

- Egrimoine, valerian, and lunarie.
Prologue of the Chanounes Yeman, III. 32.
- Lunary was a name given to many plants of supposed magical powers in Chaucer's time, but later it was restricted to Honesty (*Lunaria biennis*) and the Fern Moonwort (*Botrychium lunaria*).

MAPLE.

1. Mapul, thorn, beech.
Knights Tale, I. 182.
 2. Under a maple that is faire and grene.
Cuckow and the Nightingale, IV. 229.
- Both name and tree have been in England from the earliest times: now chiefly as a hedge-shrub.

MARIGOLD.

1. And jealousy
That werud of yolo guldres a gerland.
Knights Tale, I. 150.
2. Eek eche at other threw the floures bright,
The primrose, the violete, and the gold.
Court of Love, IV. 183.

Gold is the short name for the Marigold, a great favourite in all old gardens but the name is given to several different yellow plants, as the Marsh Marigold, the Corn and the Garden Marigold. Chaucer's may have been any of the three.

MEDLAR.

1. That ilke fruyt is ever lenger the wers.
Til it be rote in mullok or in stree.
Prologue of the Reeve, I. 217.
2. I was ware of the fairest medler tree,
That ever yet in alle my lif I sie,
As ful of blossomes as it might be.
Flower and the Leaf, IV. 240.
3. The goldfinch eke, that from the medler tree
Was fled for heat into the bushes colde.
Ib., IV. 254.
4. Medlers, plowmes, perys, chesteyns.
Romaunt of the Rose, VII. 59.

The Medlar is not a native of England, but it was introduced into England very early, and, as an ornamental tree, it fully deserves all that Chaucer says of it in No. 2.

MINT.

- Down by a lytel path I fonde
Of mentes fulle.
Romaunt of the Rose, VII. 37.

MYRRH.

- The myrre also that wepeth ever of kynde.
Complaynte of a Loves Lyfe, VIII. 8.

Chaucer alludes to the fable of Myrrha changed into a tree.

NUTMEG.

1. And notemuge to put in ale.
Tale of Sir Thopas, III. 119.
2. And trees there were gret foison,
That baren notes in her sesoun,
Such as men notemygges calle,
That swote of savour ben withalle.
Romaunt of the Rose, VII. 58.

Though Chaucer spoke of Nutmeg trees, it is very certain that he never saw one; but the nut, with its pretty covering of Mace, was imported into England from the East long before his time.

NETTLE.

1. Full oft
Next the foule nettle, roge and thik,
The little wexith, white, smoothe, and soft.
Troilus and Cryseyde, V. 50.
2. Nettle in dokke out.
Troilus and Cryseyde, V. 196.
3. Thesteles sharpe of many maners,
Netles, thornes, and hokede breres.
Romaunt of the Rose, VII. 69.

See "Dock." H. N. Ellacombe, *Bitton Ficarage, Bristol.*
(To be continued.)



PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to L. FORD of R. THURCHILD, Esq., Gunnersbury House, Acton, Middlesex.

CHRYSANTHEMUMS IN TUBS OR LARGE POTS.—I have previously advised the culture of the early-flowering variety of Chrysanthemums in large receptacles. Our plants are nearly 6 feet through, and the shoots have been trained apart to make shapely specimens. In another month the earliest varieties will be in flower. If large plants are not needed, smaller ones should be grown, and these will only require at the most three stakes. Avoid formality as much as possible in training the plants. Attend carefully to their watering, and never allow them to suffer from drought at the roots. Occasional doses of liquid manure will greatly assist them at this stage, and this stimulant may be given for a few weeks to come. All Chrysanthemums now require a close attention in watering, tying the shoots and keeping them free from aphids.

ROMAN HYACINTHS.—The earliest consignments of Roman Hyacinths have been received, and the bulbs are found to be of good quality. I prefer a heavy, solid bulb of medium size rather than an extra large one. Proceed as soon as possible to pot or box the first batch intended for flowering in October. For use as decorative plants in pots place three bulbs in a 4½-inch pot or six bulbs in a 6-inch pot, but if the blooms are required for cutting, as many as from 25 to 50 bulbs may be placed in a single box. Just cover the bulb with the soil, which should consist of sandy loam and leaf-mould. Successional plantings should be made to extend the time of flowering. Not more than one fifth of the stock of bulbs should be planted at one time, and the last potting should be done not later than the end of September. Place the pots in a cold frame and cover them with a layer of ashes about 3 inches deep; see that the ashes have been well exposed to the air for some time after removal from the stovehole. The lights need not be put on for two months at least, but the ashes may be watered.

NARCISSUS.—The first batch of early Narcissus may also be potted, for early potting means early rooting, and it is essential to secure an abundance of roots before forcing is attempted. Both the Double Roman and the Paper White Narcissus, of the Polyanthus section, are quite dependable and force easily. The old double-flowered Daffodil and Golden Spur are, in their section, the best to choose for early forcing. Both these may be had in flower by Christmas or the New Year, if they are started in growth early in the autumn.

PELARGONIUM.—The large-flowered section of Pelargoniums, represented by the Show, Regal, and spotted French varieties, should soon be pruned, if the work has not been done already. The plants should be placed on their sides for a time before the operation is performed in order to allow them a rest. Do not hesitate to prune severely, unless large specimens are desired. Some of the best cuttings should be reserved for purposes of propagation. They will root in the open if planted in a sunny situation, in loamy soil containing plenty of sand.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westombit, Gloucestershire.

COCHLIODAS AND THEIR HYBRIDS.—The genus *Cochlioda* is not a large one, the only known species being *C. Noezliana*, *C. rosea*, *C. sanguinea*, and *C. vulcanica*. These are, however, of considerable importance to the hybridist; crossed with *Odontoglossums*, they have given us the beautiful *Odontiodas*, and these include some of the most brilliant Orchids that have been raised. O. Bradshawia, O. Bohnhoffia, O. Charlesworthii, O. Devosiana, O. Graingeria, O. heatonensis, O. keightleyensis, O. St. Fuscien, O. Thwaitesii, O. Vuylstekei, and O. wickhamensis, may be mentioned as some of the choicest amongst them. They will all thrive in a cool, airy, and moist atmosphere, such as is suitable to the cool *Odonto-*

glossums. The plants should be grown in pots, placed on the stage, and kept well up to the light all the year through. In a suitable atmosphere, and under judicious treatment, they are not much subject to insect attacks, but every endeavour must be made to keep down thrip. This is a very troublesome pest to eradicate at this season, and if any thrip is detected, prompt measures must be taken to effect its destruction. Mild fumigations of a vaporizing compound at regular intervals and dipping the foliage in some safe insecticide are the best remedies. The plants are rather erratic in their time of growing and flowering; the majority are now making their growths for next year's blooming. If any plants are in need of fresh rooting materials, the cultivator should, if possible, anticipate the production of young roots from the developing growths, by placing some compost about them, as this will strengthen the plant materially and afford a firm hold in the new soil. Nothing is better for planting them in than fresh *Osmunda* fibre, broken into small lumps with the fingers; *Polypodium* fibre or Oak leaves, and clean, fresh *Sphagnum*-moss, three-parts of the *Osmunda* fibre to one each of the others. Add a little coarse sand and crushed crocks to the mixture, and stir the components well together. Small pots should be employed, as nothing is so fatal to these plants as overpotting, and the pots should be thoroughly well drained with clean crocks. In potting, set the plant so that the base of the pseudo-bulbs are slightly above the rim of the receptacle, pressing the compost firmly about the roots without bruising the latter, and finish off with a layer of fresh *Sphagnum*-moss, trimmed to the edges to present a neat appearance. The supply of water at the roots must be ample while the growth is active, and at no period should the rooting material be allowed to remain dry for any considerable length of time.

HOT-WATER SYSTEM.—The heating apparatus should be thoroughly overhauled and put in a proper working order ready for the winter. Leaky joints in the pipes should be made good, and the valves and air-taps made easily movable. The present season affords a suitable time for renewing old and worn boilers; if these are neglected they are almost sure to break down when extra strain is put upon them during cold weather in winter. Of the many good types of greenhouse boilers on the market, the best of the sectional kinds are to be recommended.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of HADINGTON, K.T., Tynningham, East Lothian.

PROPAGATING BEDDING PELARGONIUMS AND FUCHSIAS.—Cuttings of bedding Pelargoniums may be inserted forthwith, taking care to select the shoots where they will not be missed in the flower-beds. Vigorous plants are the better for being thinned, especially close-growing varieties, with shoots that are crowded in the centre. But the taking of cuttings from such sorts as Paul Crampel, Univers, and the popular Henry Jacoby needs to be done judiciously, or their removal from the plants will be noticed for some time afterwards. The shoots will be firm and well ripened this season, and should strike readily. It is a good practice to allow the cuttings to wither for a day or two after they are trimmed before inserting them in the cutting boxes or pots. It is also well to place the boxes on a trellis-work staging, in case heavy rains should fall before the cuttings are rooted. Ivy-leaved Pelargoniums root much more freely than the Zonal-leaved varieties; they should be treated in the manner advised above. Allow for failures by inserting a fair percentage above the numbers required of all kinds. Cuttings of Fuchsias may also be inserted now. Soft shoots are the best for the purpose, and to preserve them in a fresh condition, they should be placed in a pan of water till wanted. They root successfully in an ordinary cold frame, kept close and shaded from the sunshine; but they need to be sprayed frequently to prevent them from flagging. Cuttings, if inserted at this season, will, if they are treated properly, provide good flowering plants by the time they are wanted next June. It seems to be the custom to insert cuttings of bedding *Niolas* about this time, but two months hence is quite soon enough for these, and the shoots at that time are superior for the purpose to any

that can be had now. These later cuttings will root in time to form splendid plants for summer and autumn blooming.

ASTERS.—Black leg disease has been very prevalent amongst the *Ostrich Plume* varieties of China Asters this season, although the other kinds are scarcely affected. No fewer than 200 plants have already been replaced with fresh stock. Sheep dip, in solution, which is composed mainly of carbolic acid, is said to be a valuable specific for black leg. Hitherto, I have refrained from using this substance, mainly because that which is harmless to vegetation on some soils might prove injurious on the very porous soil in which Asters are growing here.

DIANTHUS BARBATUS (SWEET WILLIAMS).—The blooming of these flowers being almost over, the old flower-spikes should be cut down close to the ground, preserving, however, the growths which proceed from their base, should the plants be considered worth keeping. After the spikes are cut, apply some light soil about these basal shoots, so that roots may develop and form plants that may be either transplanted before the autumn or left where they are to flower next year. The bare spaces in the beds should be filled meanwhile with some other plant in or just about to flower. Soak the plants with water to enable them to produce new roots immediately. Pinks of such varieties as Mrs. Sinkins and those of the plumarius and superbus types, which root in the same way as Sweet Williams, should also be trimmed, and have soil applied in the same manner to induce the production of stem roots before the autumn, when the plants may be pulled to pieces, and each piece replanted with its newly-formed roots. The florists' varieties of Pinks will now be rooted, and the layers should be transplanted before the roots become entangled in the soil. It is usual to place them in lines a few inches apart till beds can be got ready for them next month.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

PARSLEY.—The plants raised from seed sown a month ago should be ready for thinning. Those removed from the rows may be planted in some sheltered position, where they may be covered with box frames during cold weather. The ground selected for the transplanted seedlings should be rich, but not of a light texture, and the soil should be trodden before the plants are put out. If the seedlings are planted at 8 inches apart, they will have room to develop into good strong plants before the season is far advanced. Give liberal supplies of water at the roots, and, when the plants have grown to a good size, they should be cut close to the ground to procure a stocky growth. Frequent light dustings of soot may be given to Parsley with advantage.

CELERY.—Give liberal supplies of water to the roots of Celery plants throughout their growing season in order to promote a clean, healthy growth. After a copious watering has been applied, the surface soil should be stirred with a hoe in order to loosen it and keep down weeds. The earliest plants should be further earthed up as soon as the soil has become of a sufficient height above the soil which was placed about them a short time since. Great care should be exercised that none of the soil is allowed to fall into the centres of the plants. Neither should it be pressed too tightly, as the centre leaves need room to develop.

LEeks.—Further plantations of Leeks may be made now to provide supplies next April and May. The plants should be allowed a distance of 1 foot between the rows and 8 inches in the rows. Give plenty of clear water to the roots until they are established, and keep the soil loose by hoeing frequently. Leeks planted early in the season should be watered freely with liquid manure, and have a little soil placed around the stems as growth advances. The Leek is a gross feeding subject, and, unlike most vegetables, the largest specimens have the mildest flavour, therefore endeavour to grow them as large as possible.

TOMATOS OUT-OF-DOORS. If the plants have been restricted to single stems, there will be little difficulty in securing a good crop of fruits. As soon as four or five trusses are set

n each plant, the top of the shoots may be pinched out, and all side shoots and worthless leaves removed. The surface soil should afterwards be pricked over with a fork, and a dressing of artificial manure applied and washed into the bed with clear water. Tomato plants intended to furnish a supply of fruits in the early winter, should be ready for potting into their fruiting pots. Turfy loam and a sprinkling of leaf soil will form a suitable rooting medium. Pot moderately firmly and allow room for top-dressing to be applied towards the end of the season, when sufficient fruits are set. The plants may be grown in the open until the fruits have formed, unless wet weather sets in, when they should be placed under cover in some well ventilated house, but leave the lights open night and day as far into the autumn as circumstances will permit.

SPINACH.—It is still necessary to make frequent sowings of Spinach in order to maintain a daily supply. Choose a border with an eastern aspect so that the plants may escape the afternoon sun. Give daily waterings with clear water as soon as the sun's rays are off the border. Winter Spinach may be sown in quantity in order to produce a good supply in the cold weather. Sow in shallow drills, drawn at 15 inches apart, and, if the ground is dry, pour water into them the night previous to making the sowing.

LETTUCE.—Prick off seedling Lettuces as soon as they are large enough to handle and before their roots have reached to any considerable depth in the soil. Plant in a shady situation. While dry weather continues the plants should be frequently damped in order to hasten their growth. Make a sowing of Lettuce seeds weekly throughout August, choosing a border facing west, where the plants may be protected from east winds in early autumn.

THE HARDY FRUIT GARDEN.

By W. HENRY WOODS, ASSISTANT GARDENER, BUCKINGHAM HOUSE.

WALL FRUIT.—Apricots are ripening their fruits, which should be exposed to the sun's rays as much as possible. Keep the leading branches trained to the wall, and stop all fore-right shoots close to the main branches. Peaches and Nectarines that have developed strong shoots must receive proper attention to enable the growths to become thoroughly ripened. All shoots not required for bearing next year should be removed at once, particularly the cross-growing ones that are not required for furnishing vacant spaces. Thin out the weaker growths so that those that remain are exposed fully to the light and air. Should red spider or mildew appear on the trees, carefully dust the affected parts with sulphur, as advised in a previous calendar, but avoid syringing the foliage with insecticides whilst the fruits are present on the trees. Morello Cherries need to be protected by nets until they are gathered.

BUSH FRUIT.—Either destroy at once or mark for destruction later any bushes that are inferior in any way, for if this is neglected until the leaves have fallen they will be difficult to identify, and mistakes may be made. Keep the ground between the bushes well hoed, especially where the plants have been attacked by caterpillars. If this is done, there will be less likelihood of caterpillars appearing than if the soil is not disturbed. Indeed, in some places where the ground is kept well hoed, caterpillars are not seen for years together. Avoid planting anything near the bushes which will prevent the soil being stirred frequently.

APPLES AND PEARS.—These fruits have been greatly benefited by the recent rains, and are swelling fast. The Apple and Pear crops are more satisfactory than was expected earlier. In these gardens, whilst some Apple trees have no fruit, others have a fair number. It is interesting to observe that, whilst young trees of Blenheim Pippin are fruiting fairly well, older-established trees are bare of fruit. Of dessert Apples, American Mother, Baxter's Pearmain, Beauty of Bath, Brownlee's Russet, Cox's Orange Pippin, and Sturmer Pippin are carrying fair crops; whilst the following cooking varieties are satisfactory:—Ecklinville Seedling, Bismarck, Blenheim Pippin, Hawthornden, Lane's Prince Albert, Lord Grosvenor, Schoolmaster,

The Queen, Warner's King, and Northern Greening. Many varieties, including some of the newer sorts, such as Allington Pippin and Charles Ross, also Lady Sudeley, Lady Henniker, Hoary Morning, Newton, Wonder, and Sandringham, have failed altogether this season. With well-ripened wood, most of these will, in all probability, fruit satisfactorily next season. Attend to the removal or stopping of all superfluous growths, so that the shoots and spurs which will bear fruit next year may have all the sunlight and air possible. Fruit trees of all kinds are now fairly free from insect pests, and, with favourable autumn weather, the wood generally should be well ripened. Where wasps are troublesome, the nests should be searched for and destroyed. Cyanide of potassium is one of the surest and quickest agents to employ for the extermination of these pests, but great care must be exercised in its use, as it is a very poisonous compound. If a small piece of the cyanide is placed in the hole leading to the nest, and the entrance afterwards covered with a clod of earth, it will usually exterminate the whole colony, after which the nest may be dug out and destroyed.

FRUITS UNDER GLASS.

By L. BROWN, GARDENER AT THE VICARAGE GARDENS, ADELPHI HOUSE, BEDFORDSHIRE.

POT VINES.—The wood of pot vines intended for early forcing is almost ripened, for the recent spell of fine, sunny weather has been entirely in the plants' favour. If the vines are not already stood out of doors, they should be placed in an open, sunny position outside and made secure against the wind. Watering must be done carefully, as the plants, having matured their growth, require very little moisture, but the soil must not be allowed to become excessively dry. Pinch out any lateral growth, and allow the foliage to fall naturally.

PEACHES AND NECTARINES.—It has been a difficult matter of late to retard any trees with fruits approaching ripeness, and in many instances the fruits have matured too quickly. Trees carrying the latest crops of these fruits will need all the fresh air it is possible to afford them, both by day and night, and a slight covering placed on the glass during the day. Where the material that was applied to the borders as a mulch has become exhausted, apply a further thin covering of horse-droppings. This mulching will prove helpful to Peach trees in all stages of growth. As the crops are gathered, and if the wood is too thick, some of this year's fruiting shoots may be removed with a sharp knife, but otherwise I prefer to leave any pruning until the winter. See that the trees do not suffer for lack of water, as more than one cause of failure in the spring is, I believe, attributable to dryness at the roots at this season. Give the foliage a thorough syringing at least once daily, except those trees that are carrying ripe or nearly ripe fruits. The use of fire-heat during the present hot weather is quite unnecessary.

GENERAL REMARKS.—Contrary to last year's experience, wasps have this season been much in evidence, and they are spoiling all out-of-door crops of fruits, including the few green Apples we have. We have made a careful search for their nests, and destroyed nearly one hundred in the immediate vicinity. Wasp-proof netting should be placed at once over the ventilators and other apertures in all houses containing fruit. Bunches of Grapes may be enclosed in muslin bags, but I prefer the use of wasp-proof netting. Examine bunches of ripe Grapes at intervals for shrank or otherwise defective berries. The permanent rods of early vines may have the lateral growths removed where the vines are in good order, as this will assist in ripening the growths that remain. Attend carefully to the watering of pot Strawberries that have only recently been transferred to the fruiting pots. Remove all runners and weeds, and, as the plants require it, afford increased space. The loam and other ingredients required for the making and top-dressing of borders should be got in readiness, and, where the loam is liable to infection by wire-worm, a quantity that has been charred, should always be kept in stock. This will be especially useful for potting purposes and the formation of Melon beds, etc. At

Adenham, we use rough 12-in. wood for the purpose of sterilizing soil by baking, building it up in a ridge, and placing the turves grass side downwards to smoulder for several hours. A good supply of charcoal may be obtained in this way, which will be useful for potting and other purposes.

THE APIARY.

By CHURCHILL.

BEES AND WATER.—Brooks and ponds are, in many parts, quite dried up, and the natural water supply being very scarce, it is necessary for the beekeeper to provide plenty of clean water for his bees. Several methods were advised in my notes for May 20, any one of which may be resorted to now.

WASPS.—In some apiaries wasps are already a great source of trouble, and weak colonies of bees will be easily destroyed by them; where this is the case, unite the weaker colonies by drawing the hives gradually towards each other, moving them about a yard each day when the bees are on the wing, until they stand side by side. After this is accomplished, give each colony, in the late evening, a good puff of smoke to make the bees gorge themselves with food, so that they may be the more easily united. Having settled which hive is to be the future home (it would be better to utilise a perfectly clean hive), take the combs covered with bees and either use the flour dredger, giving all the bees a light covering of flour, or spray them with peppermint water to give them the same scent. Perform the same operation in the other hive, then place the combs of brood from each hive alternately, giving more than the usual space to prevent fighting; combs of sealed food may be inserted the next night, when the frames may be properly spaced. It is best to use some scented water in preference to flour, because the bees will cleanse themselves of flour and store it as pollen, and usually bees have more than enough of this food. The entrances of all hives badly attacked should be narrowed so that one bee only can pass at the same time. In some instances heavily-laden bees, which do not quite reach the alighting board, are attacked on the ground and the bodies severed, the wasps carrying away the abdomens. It is an easy matter to destroy wasps when their burrows are found by placing a small piece of cyanide of potassium at the entrance. The poison and the surrounding soil should be slightly moistened with water. At night remove the dead wasps with a stick and remoisten the cyanide. Next morning repeat the operation, and at night the nest may be dug out.

TIME OF MANIPULATION.—Some beekeepers use far more smoke than is necessary when examining their hives, thus irritating the bees, causing endless stings and trouble. During cold and stormy weather and when honey is scarce, are the worst times to open the hives. Some beekeepers do not puff smoke in at the entrance, believing that it only drives bees upward, where they are not wanted. As the quilts are rolled back, slight puffs only are given as the bees require to be driven back. Very little expert knowledge is necessary to know when bees are spiteful and intent on stinging; they fly at the operator in a determined manner and with a loud buzz that cannot be misunderstood. To prevent bees from creeping up the sleeves use a pair of elastic bands or a pair of gauntlets that will grip the wrists firmly. Instead of the smoker, some experts prefer an atomiser, which will send a fine spray of dilute carbolic acid over the bees. The solution is made by using 20 parts of water to one of Calvert's No. 5 carbolic. A third method is the carbolic cloth, which was first used by a skilled and enthusiastic beekeeper of considerable repute, who was noted for his gentleness. Cut a piece of calico the size of the top of the frames 17 or 18 inches square, make a solution of carbolic, using one of carbolic to two of water, sprinkle the cloth, just perceptibly damp, roll it up and place in a tin box and it is ready for use. As the quilts are rolled back, unroll the carbolic cloth, and after a few seconds it may be taken off and the hive examined. As soon as the bees rise draw the cloth over. The great advantage of using carbolic is frames. Another advantage of using carbolic is that it is a good disinfectant and a preventive of foul brood, but it will cause the skin to blister, and must be used with caution.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Contributions should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, AUGUST 12—

Green and District Fl. Sh.

MONDAY, AUGUST 14—

United Hort. Benefit and Prov. Soc. Com. meet.

TUESDAY, AUGUST 15—

Roy. Hort. Soc. Coms. meet (no exhibition). Roy. Oxfordshire Fl. Sh. American Gladiolus Soc. Sh. at Littlemore, U.S.A. (4 days). North of England Hort. Soc. Sh. at Harrogate.

WEDNESDAY, AUGUST 16—

Hemel Hempstead Fl. Sh.

THURSDAY, AUGUST 17—

Roy. Hort. Soc. of Aberdeen Sh. in Duthie Park, Aberdeen (3 days). Deal, Walmer & Dist. Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—62° 2'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, August 9 (6 P.M.): Max. 97°; Min. 67°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, August 10 (10 A.M.): Bar. 30° 5'; Temp. 77°. Weather—Sunshine.

PROVINCES.—Wednesday, August 9: Max. 91° Cambridge; Min. 58° Ireland N.W.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Special Sale Lilium Harrisii, Roman Hyacinths and numerous other bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 2.

The Heat and Drought.

Few people outside the ranks of professional gardeners realise the enormous amount of labour and the acute anxiety which are entailed by a spell of weather such as we are experiencing at the present time. The continued drought and fierce heat are enjoyable topics of conversation to those who sit on sandy beaches fanned by the cool breeze from the sea, but they are exasperating subjects not fit for conversation to those whose work confines them to the hot air ovens of London or any great town. Yet, even for them, drought merely spells, for the most part, discomfort and not disaster. It is, we fear, often otherwise in the garden, where, despite the employment of all modern resources of mulching and the use of sprayers and spreaders and watering pots, choice specimens are flagging, leaves falling prematurely, fruit failing to swell, and trees are dying. Nowhere have the labour and the anxiety entailed by the drought been felt more acutely than at Kew. In those great gardens, in spite of the watering being carried on night and day, many shrubs are suffering, and not a few Beeches and other trees have already succumbed. Some idea of the enormous labour entailed upon the staff by this almost unprecedented period of drought and fierce sunshine may be gathered from the fact that, last week, upwards of one and a half million gallons of water were used in that establishment. When it

is remembered that, with very brief intermission, the drought has extended for six or seven weeks, it will be understood how even such a liberal allowance as this may fail to meet the requirements of the thirsty soil. Nearly a month ago, on July 13, it was found necessary to use nearly half a million gallons of water in these gardens. The water is pumped from the Thames into reservoirs situated on high ground in Richmond Park, whence it is distributed to the various parts of the grounds. With respect to the temperatures which have been recorded, we may mention that on Wednesday, the 10th, the maximum sun temperature at Kew was 114°. In the frame-yard the shade temperature had already reached 80° at 9 o'clock, and by 1 o'clock it had established the record of 97°. These indeed are records which we could well do without, and even at the expense of hurting the feelings of those who are bent on holidays, no gardener can refrain from expressing the ardent hope that we may soon be blessed with "the gentle trouble of the rain."

School Gardens in London.

At a meeting of the London County Council on August 1 the Education Committee reported that they had had under consideration the general question of school gardens. There are already about 171 of these gardens in or adjoining the playgrounds of public elementary schools maintained by the Council. Sixty applications for the formation of school gardens had been postponed pending a decision on the general question. The school garden is used in connection with the teaching of botany and also in conjunction with the observation- and nature-study lessons which are included in the curriculum of the majority of the elementary schools.

Formerly, the subject of nature study was confined almost wholly to infants' schools, but it is now taking an important place in the work of the senior departments. Although the gardens at many of the schools have been formed for some time, the experiment of utilising them for nature study is a comparatively recent one. At first they were used for decorative purposes only, but the advantages of obtaining first-hand information on many points connected with nature-study lessons and of providing specimens for instruction in botany have induced many teachers to take considerable interest in the gardens and to utilise them in connection with the school work. Several of His Majesty's inspectors have suggested from time to time that it would be an advantage if the garden plots could be arranged in the playgrounds, and the Council's district inspectors are unanimously of opinion that school gardens are of high educational value and deserve the utmost encouragement by the Council. Having regard to all the circumstances the Education Committee are of the opinion that it is desirable that gardens should be provided wherever the conditions are favourable.

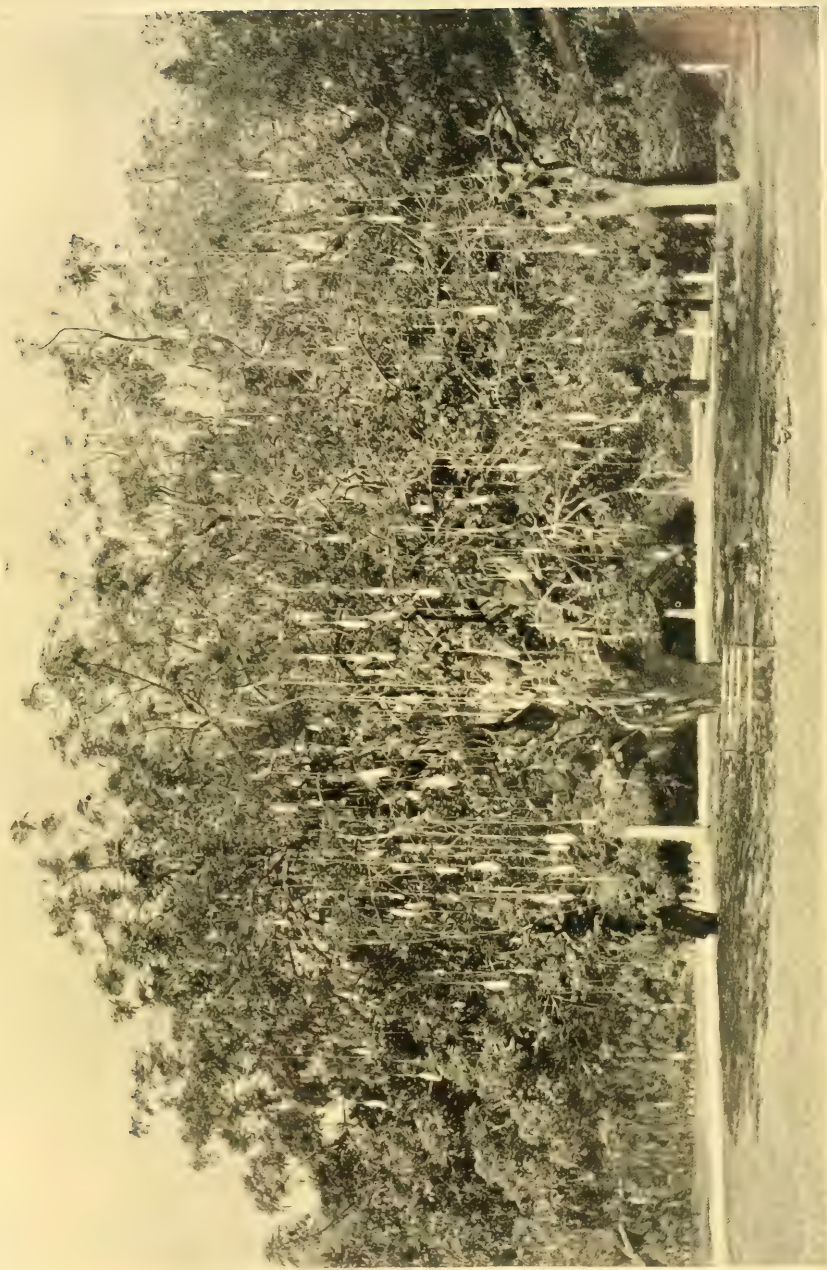
There are, continues the report, various points to be borne in mind in deter-

mining each application for the formation of a garden. The committee regard it as essential in each case (a) that the initial cost should be reasonable, (b) that the teachers should be desirous of having a garden, (c) that the size of the playground should admit of a garden being provided which would not unduly encroach on the space required for games, or that land should be obtained near the school, and (d) that the teachers should be qualified to undertake the management of the garden. They propose that a selection should be made from the applications now before them and that during the next few years about twenty gardens should be formed each year in connection with the existing schools. They were advised that many of the 171 school gardens at present in existence were remarkably well cultivated, but that others did not afford the full educational advantages of which they were capable—partly owing to lack of knowledge on the part of the cultivators, and partly because of want of means. On several occasions they had had under consideration the question of transferring the management of the gardens to the Parks and Open Spaces Committee, but that Committee has expressed the opinion that it would not be practicable for the work to be carried out in an economical manner by the Parks department. They were convinced that if the gardens are to be successful, it is essential that the school teacher should have the management of them, on the understanding that, when desired, he or she should be enabled to have the advice of the officers of the botany depot. They therefore propose that the management of the gardens should be entrusted to the schoolmaster or head-mistress of the schools.

The average cost of forming a school garden was about £15, so that if twenty additional gardens were formed each year the cost would be about £300. They could not at present estimate the total number of gardens which should be formed in existing schools, but it is not anticipated that the number will exceed one hundred. When they had been arranged the cost of the total upkeep would be about £75 a year, £25 for tools and £50 for seeds. Garden beds would be formed at new schools where the conditions are suitable and where the head teacher is desirous of such facilities.

The Education Committee recommended the Council to vote £300 for the formation of school gardens and this was agreed to.

The Finance Committee in reporting on the proposal said that they had carefully scrutinised it, as the policy which was being pursued might lead ultimately to considerable expenditure. The necessity of providing these gardens "as an experiment" was not apparent, as there were already 171 gardens in connection with schools, but after careful consideration the Finance Committee were prepared to concur in the provision up to the expenditure now in question, on the understanding that the limitations laid down were strictly observed. Any departure from such conditions would necessitate the reconsideration of the whole scheme.



NIGELIA PINNATA, WITH FLOWERS AND SUSPENDED FRUITS, IN THE SAJJAN NIWAS GARDENS, UDAIPUR.

OUR SUPPLEMENTARY ILLUSTRATION represents a tree of *Kigelia pinnata* growing in the Sajjan Niwas Gardens, Udaipur, India. Mr. STORER, the superintendent of the gardens, has been very successful in obtaining seeds by artificial pollination, and the specimen figured in the illustration is a young tree which has reached the fruiting stage. As will be seen, the fruits, which are borne on the old wood, hang down like candles, 2 feet long, suspended by yet longer stalks. *Kigelia pinnata* is a native of Africa, whence it has been introduced into many parts of the Tropics. It is a member of Bignoniaceæ, and forms a large and striking tree.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.—The revised schedule for the International Exhibition, to be held at Chelsea, in May next, is now ready for distribution, and copies may be obtained, post free, from T. GEOFFREY W. HENSLAW, Secretary, Royal International Horticultural Exhibition, 7, Victoria Street, Westminster. A preliminary schedule was distributed some months ago for the purpose of affording exhibitors some indication of the general nature of the competitive classes, but it was not possible at that time to enumerate the awards. These latter include presentation cups offered by His Majesty the KING, the Duke of PORTLAND (President of the Exhibition), and others, also a large number of gold and silver medals. In some of the more exacting classes money prizes accompany the medals, in order that exhibitors may be compensated for expenses necessarily incurred. The present schedule contains this information, and it is therefore indispensable to those who contemplate making contributions to the show. R. Hooper Pearson, Hon. Press Secretary.

NORTH OF ENGLAND HORTICULTURAL SOCIETY.—At the exhibition of this society to be held on the 15th inst., at Harrogate, in the cricket field next to the Harrogate Agricultural Society's field, delegates from the Royal Horticultural Society will award R.H.S. medals. Lord FABER has offered a challenge cup for the best exhibit staged by an amateur employing a regular gardener. Mr. W. PENROSE GREEN and Lady KATHLEEN PILKINGTON have also offered challenge cups. The show will open at noon and close at 6.30 p.m. Judging will commence and committees will meet at 11 a.m. The official list of awards will be made at 3.30 p.m., when the cups, to be held for one year, will be presented to the winners by Lady KATHLEEN PILKINGTON. The National Hardy Plant Society offers special prizes for a "circular bed of hardy plants of not more than three kinds, not less than 6 feet nor more than 8 feet in diameter, to demonstrate their value for bedding."

VISIT TO A SEED NURSERY.—Messrs. JOHN K. KING & SONS recently invited members of the gardening Press and others interested in seed-raising to inspect the trials at their various seed farms, situated between Coggeshall and Chappel. The first place visited was Robin's Bridge, Coggeshall, where a trial of 213 varieties of garden Peas is being conducted. The visitors were also shown trials of Lettuces, Onions, Cabbages, Carrots, Broccoli, Radish and Beet, as well as farm crops, including Mangel, Sugar Beet, Swede, Turnip, Wheat, Barley, and Oats. Altogether the crops under cultivation for seed purposes at the various farms included 284 acres of Swedes and Turnips, 178 acres of Mangels, 280 acres of Wheats, 230 acres of garden Peas, 20 acres of garden and field Cabbages, 120 acres of Oats and Barley, 24 acres of Radishes, 18 acres of Onions, 12 acres of Carrots, 18 acres of garden Beans, and 16 acres of Kohi Rabi.

THE KING'S PRESENT TO A GARDENER.—His Majesty the KING has presented a gold and jewelled scarf pin to Mr. WILLIAM SMITH, the superintendent of the gardens at Holyrood Palace, as a token of his appreciation of the condition of the gardens and grounds at Holyrood on the occasion of the recent visit of the KING and QUEEN to Edinburgh.

NATIONAL HARDY PLANT SOCIETY.—The National Hardy Plant Society is arranging a conference to be held at Shrewsbury on August 24, the second day of Shrewsbury flower show, when papers on important subjects will be read and discussed. All members and prospective members of the Society are invited to attend. Full particulars may be obtained from the hon. secretary, Mr. FRANK BOUSKELL, Market Bosworth, Nuneaton.

EXHIBITION OF GLADIOLI.—In the Palm Court at Messrs. SELFIDGE'S, Oxford Street, London, on the 2nd, 3rd, and 4th inst., a display of about 1,000 spikes of Gladioli was made by Messrs. KELWAY & SON, Langport. The flowers proved a great attraction to visitors, there being large spikes of some of the finest sorts of this beautiful flower.

ROYAL VISITORS AT A DUTCH NURSERY.—On Monday, July 24, H.R.H. Prince HENRY OF THE NETHERLANDS, paid a visit to the Royal Moerheim Nurseries, Dedemsvaart, Holland. His Royal Highness, who arrived by motorcar, was welcomed by Mr. B. RUYSS and his brother Mr. L. A. RUYSS, and immediately the company started to inspect the grounds. The Prince examined with much interest the several specialties of Mr. RUYSS' nursery. The fields with Delphiniums, Phlox, &c., which were in full flower, attracted the attention of His Royal Highness, and he expressed admiration of the culture of the Conifers, Rhododendrons, Hollies, Roses, &c. Mr. RUYSS had prepared a show of cut flowers. Two tables were covered with 360 vases of flowers, among which were 50 varieties of Roses, including Rayon d'Or, Juliet, Lady Hillingdon, and Miss Alice de Rothschild.

"THE BOTANICAL MAGAZINE."—The issue for July contains illustrations and descriptions of the following plants:—

VIBURNUM RHYTIDOPHYLLUM, tab. 8392, figured and described in *Gardeners' Chronicle*, June 30, 1906, p. 418. The plant is very ornamental in September when covered with its red berries, which ultimately turned black.

SPIRÆA VEITCHII, tab. 8383.—This species was described by Mr. HEMSLEY in *Gardeners' Chronicle*, April 25, 1903, p. 258. Plants in Messrs. VEITCH'S Coombe Wood Nursery have formed growths 6 to 8 feet long in a single season. These shoots are barren the first year, but the following season they develop axillary branches.

DRACOPHYLLUM ARGENTENSE, tab. 8384.—The genus *Dracopcephalum* includes two closely allied species, *D. Ruyschiana* and *D. austricum*. *D. argunense*, which was regarded by the late Professor GRAY as a variety of the *D. Ruyschiana*, was named and figured in the *Gardeners' Chronicle*, August 9, 1878, p. 167, as *D. Ruyschiana*, variety japonicum. The species has long been cultivated in gardens, having been introduced in 1822. Mr. W. PURDOM, whilst plant collecting for Messrs. J. VEITCH & SONS, sent seeds from Weichang, in Northern Chili, and the plants raised therefrom furnished the material for illustration in the *Botanical Magazine*.

CUCUMIS METULIFERUS, tab. 8385. This species is a native of Tropical Africa, and produces brilliant, scarlet fruits, which remain on the plants for a long time, and are very ornamental. Specimens grown in the Tropical Aquatic house at Kew, in company with other gourds, produced a most beautiful effect.

CYRIPEDIUM SPECIOSUM, tab. 8386.—This species has been in cultivation in this country under the name of *C. macranthum*, of which it is undoubtedly a near ally, but the original *C. macranthum* has flowers of a deep rose-purple shade. In *C. speciosum* they are pale flesh-colour veined with rose. The cultural conditions suitable for *C. macranthum* are also suitable for *C. speciosum*.

A NEW IMPATIENS.—In the *Kew Bulletin*, 1911, p. 249, Sir JOSEPH HOOKER describes a new Balsam with peltate leaves, under the name of *Impatiens peltata*. It is a native of the Malay Peninsula, and was discovered by Mr. D. T. GWYNNE VAUGHAN, Professor of Botany at Belfast. Sir JOSEPH HOOKER states that it is the only species known to him having peltately attached petioles, and a stiff, sub-erect spiniform spur. It is a fleshy herb 9 to 12 inches high, bearing few, solitary, pink flowers, less than an inch in their greatest diameter. A second species, *I. Vaughanii*, described in the same place, is remarkable in the colouring of the flowers, described by the discoverer as: "Lower two perianth segments greenish yellow; tubular process cream yellow; other segments deep violet to purple."

PUBLICATIONS RECEIVED.—*Journal of Botany*, (August.) (London: West, Newman & Co., 54, Hatton Garden, E.C.) Price 1s. 6d.

SWEET PEAS AT WISLEY.

SPLENDID plants of Sweet Peas have been grown in the gardens of the Royal Horticultural Society at Wisley this season—one of the driest on record—notwithstanding the light character of the soil. At the time of our visit, the clumps, 70 in number, were about 7 feet tall and 4 feet in diameter. The plants had a large crop of flowers of excellent quality, the footstalks being quite 1 foot in length, and many of the spikes bearing four or five blooms. The ground was trenched early in February to the depth of 2 feet 6 inches, cow manure and a little lime being added. The seeds were sown under glass early in February in 3-inch pots, filled with ordinary garden soil, four or five seeds in each pot. Soon after germination the pots were stood out-of-doors on a warm border, and planted in their permanent quarters on March 15. Four potsful were planted in a circle to form a clump. Hazel sticks were used as supports, one in the centre and three or four round about each clump. The plants were kept well watered, and in June were mulched on the surface with a layer of rotted manure.

It may well be asked what is the secret of such fine success on a dry soil, in a situation exposed to blazing sun all day. Clean, rational culture, without any attempt to force growth by the aid of artificial manure is, I consider, the secret. A deputation of the Floral Committee examined the Sweet Peas recently and gave a number of awards and recommendations (see p. 96). The merits of the respective varieties as decorative plants were considered, i.e., plants which, while being good in habit and floriferousness for garden decoration, also furnished flowers of pleasing form and shades for use as cut blooms. Half-a-dozen of the best included Nubian, a large, dark-maroon variety; Asta Ohn, an excellent strong-growing lavender-coloured root; Dobbie's Sunproof Crimson, Elfrida Pearson, pale-pink and white, giving some flowers with double standards; Isobel Malcolm, pale-cream; and Etta Dyke, pure white. Visitor.

IPOMŒA RUBRO-CŒRULEA.

THE genus *Ipomœa* is represented in gardens by about half a dozen beautiful and well marked species. It we had to deal with no more than these there would be little difficulty in tracing the history and descriptions of garden *Ipomœas*. Botanists fix the number of known *Ipomœas* at between 300 and 400 species, including with them the genera *Quamoclit*, *Batatas*, *Pharbitis*, *Calonyction* and *Exogonium*, as well as many of the plants usually known as *Convolvuluses*. The majority of the species are ornamental and

this beautiful *Ipomœa* will be new to many, yet it has been known in English gardens for more than 70 years. It is a native of Southern Mexico. Valuable as is the plant under glass, its merits are most apparent in the open garden, and it has always been a matter of the greatest surprise to me that so few employ this *Ipomœa* for the adornment of their gardens during the summer and early autumn. Last year I had six plants growing against a south-west wall 12 feet high. Wires were strained perpendicularly up the wall at a distance of about 2 inches from the brick-

will be about 2 feet high and carrying flower-buds. The soil close to the wall should be taken out to a depth of 8 inches and a width of 1 foot. The holes should be filled with a compost composed of one-half well-rotted manure from a spent mushroom bed and one-half leaf-mould and fibrous loam. Sufficient room should be left to receive the ball of earth and roots when the plants are turned out of their pots, and this operation needs to be done very carefully, so that the mass may not be broken. The soil should be pressed lightly around the roots and a copious watering given. Every evening, if rain has not fallen during the day, the plants should be syringed copiously. A resident in the United States, writing of this *Ipomœa*, states: "This grows luxuriantly in warm, sunny places out-of-doors, but I do not think your English summers are long enough for it to bloom in the outside garden, and, therefore, you had better treat it as an indoor vine." How mistaken he was is proved by the accompanying illustration. Last year the plants bloomed splendidly, from 40 to 50 blossoms expanding every morning, and on one occasion there were 72 flowers. They made a beautiful picture and were greatly admired by visitors. Unfortunately, the flowers fade soon after noon, and in the afternoon are closed and turn pinkish-red, this being probably the reason for the name "*rubro-cœrulea*," but when the flower is fresh it is of a lovely pale blue colour. The plants commenced to bloom the second week in July, and fresh flowers continued to expand every morning until nearly the end of September, after which no more expanded, though there were hundreds of buds. The individual flowers measure 4 inches across, and supply a tint that is absolutely unique in the summer garden. I have grown this plant for five years consecutively, and even in wet summers it has always been a success. *Wyntham Fitzherbert.*



FIG. 53.—IPOMŒA RUBRO-CŒRULEA: FLOWERS PALE BLUE.

many of them quite distinct from the few that are in cultivation. They are remarkable for the beauty of their flowers, which, though fugitive, are developed in such abundant and rapid succession as to keep up a rich display of blossoms for several weeks or even months. *Ipomœa rubro-cœrulea* (see fig. 53) is one of the most beautiful of all annual climbers and one of the easiest to cultivate. It thrives in a greenhouse or conservatory during the summer, requiring a little extra heat during its flowering season. Although

work, and the *Ipomœas* soon furnished these supports. The plants branched very freely and entirely covered the surface of the wall, attaining a height of about 10 feet. It is sometimes advised to sow the seeds in February, but this is far too early for those planted out-of-doors; not much before the end of June is suitable. My practice is to sow the seeds in a warm house in May, to gradually harden off the plants when they are about 6 inches high, and to place them afterwards in a cool greenhouse. By the end of June they

FARM INSTITUTES.

A circular issued by the Board of Education to county education authorities announces that the Treasury, upon the recommendation of the Development Commissioners, have decided to make an advance from the Development Fund to the Board of Education in order to enable the Board to make additional grants in aid of the provision by county education authorities of agricultural education, in so far as that falls within the province assigned to the Board of Education by the Memorandum of Arrangements between the Board of Agriculture and Fisheries and the Board of Education, issued on September 22, 1909 (Cd. 4886 of 1909).

The grants will be distributed under detailed regulations, which the Board hope to issue at an early date. They will be given, in accordance with the proposals made by the Board after consultation with representative members of county education authorities and in the light of the report of the Rural Education Conference on County Staffs, and concurred in by the Development Commissioners and the Treasury, in aid of the provision by individual counties or by combinations of counties of county staffs of agricultural instructors working from farm institutes as their headquarters. The several types of work within and without a farm institute which a county staff might undertake in appropriate circumstances are described in detail in the enclosed Memorandum on the Principles and Methods of Rural Education. It is intended that a farm institute should serve as the headquarters for the miscellaneous and itinerant work of the agricultural staff, other than that done in regular local courses of instruction, and for educational demonstrations and similar purposes, and that it should also provide accommodation for central courses of instruction in agriculture and kindred subjects. These central courses might include, for example, (i.) a 16 to 20 weeks' winter agricultural course for the sons of small farmers, who have acquired

some practical experience on the land since leaving elementary schools; (ii.) shorter courses in dairy work, poultry-keeping and the like during spring and summer; and (iii.) vacation courses for teachers of rural subjects in local continuation courses. The buildings of an institute should include (a) an educational block with class-rooms, laboratories for students and staff, dairy, poultry stores, carpenters' and smiths' shops, &c., and, where necessary, bee-keeping and fruit-preserving stores; (b) residential accommodation for the principal; and (c) such other accommodation as may be desirable. Suitable equipment for the educational work will of course be necessary, and additional provision may in some cases be required for the institution of an information bureau and a library in connection with the work of the staff outside the farm institute.

Aid will be granted from the Development Fund towards both the provision and the maintenance of farm institutes. The grant in aid of the provision or enlargement of a farm institute will be limited to an amount not exceeding in any case 75 per cent. of the total approved cost of the provision or enlargement. The maintenance of a farm institute will be aided in two ways. The authority providing the farm institute will receive grants under the Board's ordinary regulations for technical schools, &c., in respect of the instruction given by the county agricultural staff in regular courses. To these will be added a contribution from the Development Fund in respect of the miscellaneous and itinerant work of the staff, which will be so limited that the total exchequer aid distributed by the Board shall not exceed 50 per cent. of the total approved cost of maintaining the institute and its staff. The small amount of aid at present given towards the miscellaneous and itinerant work of a county staff, under Article 34 of the Regulations for Technical Schools, &c., will be discontinued, and the Board's grants, otherwise than out of the Development Fund, will in future be limited to regular courses of instruction.

On educational grounds the Board of Education regard it as essential for the successful working of a farm institute that there should be available and in close proximity to it a farm and garden. These will not only be required in connection with the internal courses of the institute, but should also serve as an object-lesson to the farmers and gardeners of the country. In some cases a "small holding" for demonstration purposes may with advantage be added. The farm and garden should be conducted on business principles, so far as may be consistent with their primary use for educational purposes; but it is probable that such use will as a rule entail some annual deficiency upon a profit and loss account. Under the Memorandum of Arrangements between the two Boards, it will be for the Board of Agriculture and Fisheries to distribute any State aid which may become available for the purposes of a farm and farm buildings. That Board will, it is understood, in fact seek an advance from the Development Fund for the purpose of enabling them to aid local education authorities to equip and maintain farms in connection with farm institutes.

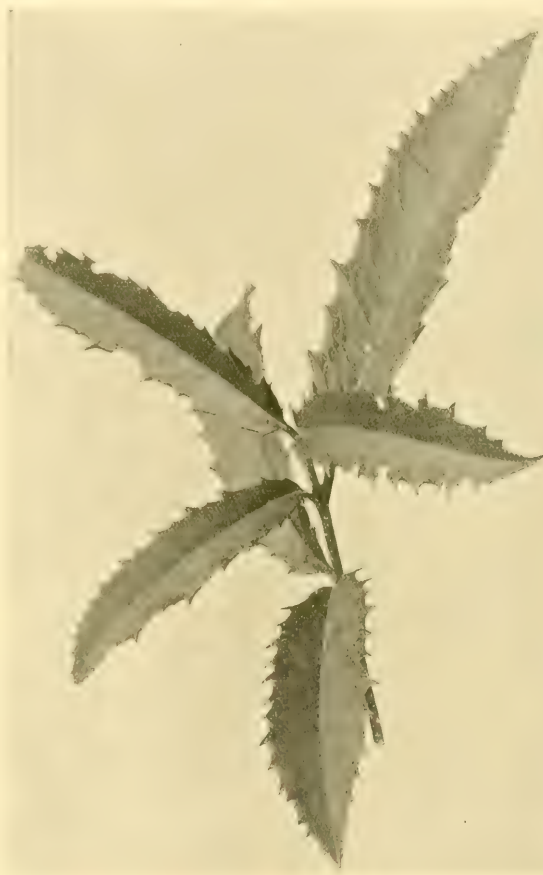
It will as a rule be desirable that the value of a staff of agricultural instructors should be fully recognised in a county before it is given permanent establishment in an institute, and the regulations will, therefore, make temporary provision for grants towards the maintenance of a staff of instructors, which has been appointed in advance of the provision of its permanent headquarters, as an initial step in the more complete organisation proposed for a county or a group of counties.

The sums which will be advanced to the Board of Education up to March 31, 1916, from the Development Fund for the purposes explained above will not exceed in all £325,000. It is understood that the Development Commission are not prepared to recommend the making of any other advances during this period for the purpose of aiding the provision of such branches of agricultural education as fall within the province of the Board of Education. In these circumstances, local education authorities will doubtless recognise that no useful purpose will now be served by their undertaking the preparation of applications to the Treasury for direct advances from the Development Fund, and will instead make application to the Board of Education for aid towards farm institutes under the forthcoming regulations.

In making grants under this scheme to local education authorities, the Board of Education have undertaken to secure that the grants shall not have the effect of reducing the amount of any expenditure at present incurred by a local education authority out of rates or other local resources upon work of the type to be aided, or the amount of any contribution made by the authority out of such funds to the higher types of educational work conducted by agricultural colleges. It is also essential that only such farm institutes shall be provided and maintained by aid from the Development Fund as are really necessary, and in this connection the Board will give close consideration to the possibility and desirability of combination between counties for

OSMANTHUS ARMATUS, DIELS.

A LIVING plant of this new and strikingly distinct evergreen (see fig. 54) was brought by me from China in 1902 to Messrs. Veitch's Coombe Wood Nursery, where a good stock of young plants has been raised from the original. This new *Osmanthus* is a rare plant in a wild state, occurring sparingly in woods throughout Western Hupeh. It affects cliffs and humus-clad boulders, often in dense shade, but occasionally fully exposed to sun. As in the case of other *Osmanthus*es, *Hollies*, and prickly-leaved evergreens generally, the leaves become smaller and less spiny on adult plants. In one of my speci-



(Photograph by E. J. Wallis.)

FIG. 54. FOLIAGE OF *OSMANTHUS ARMATUS*.

the purpose. In view of the limitations placed upon the funds at the Board's disposal, it may be necessary to impose limitations upon the number and size of the institutes to be aided in any individual county.

The detailed regulations will be supplied to the authority as soon as they can be prepared. Many points of detail in regard both to the substance and form of applications will require settlement and will need careful consideration, and the authority should therefore defer for the present the completion of any scheme they may have in contemplation to make, either alone or in conjunction with other counties, as it will be impossible for the Board to deal with any applications relating to farm institutes or county agricultural staffs until the regulations have been published.

mens collected in 1900 (No. 2,645) the leaves are 2 to 3 inches long, oval, and the margins vary from spiny-toothed to quite entire. *Osmanthus armatus* has not flowered yet under cultivation. It belongs to the autumn-flowering group with axillary inflorescences like *O. aquifolium* as distinct from the spring-flowering species with a terminal inflorescence like *O. Delavayi*, Franchet.

The description here appended is founded on my Herb. No. 2,645 and living material (No. 1,915), and the distinguishing characters are well shown in fig. 54. In some respects it amplifies Dr. Diels's original description founded on a specimen collected in South Szechuan by von Rostkorn (No. 2,040). In the Kew Herbarium there are

several sheets of this plant collected by Dr. Henry in various localities in Western Hupeh.

Osmanthus armatus, Diels, in Eng. Jahrb., xxxix., p. 552, describes the species thus:—

"An evergreen shrub or small tree 8-15 feet high, with rigid branchlets, greyish white by autumn, clothed with minute down and furnished with pale lenticles. Leaves oblong-lanceolate when young, 3 to 6 inches or more long, $\frac{1}{2}$ to 1 $\frac{1}{2}$ inch wide, acuminate, rounded or sub-cordate at the base and abruptly narrowed to petiole, coarsely denticate; the teeth triangular with very slender, spiny points; dark, dull green above, paler beneath, glabrous on both surfaces; petioles and midrib often dull-red coloured, venation prominently reticulate; lower surface covered with minute dark dots. Petiole $\frac{1}{4}$ to $\frac{1}{2}$ inch long, downy. Flowers, creamy-white, fragrant, $\frac{1}{2}$ inch in diameter, produced in axillary fascicles in the autumn; corolla lobes sub-rotund; calyx glabrous irregularly toothed and lobed; peduncles glabrous about $\frac{1}{2}$ inch long, slender. Fruit ovoid, $\frac{1}{2}$ inch long, violet-black." *E. H. Wilson.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

KENSINGTON GARDENS.—Numbers of gardeners will be paying their annual visit to the parks and gardens in London during August and September. I trust they may have time to inspect the long walk in Kensington Gardens, where the flower borders are, and promise to be for some time to come, a perfect paradise of floral beauty. The Dutch garden near to Kensington Palace, with its fine Lily tank, is also just now very beautiful. *Wm. Lee, Kensington.*

SECRET COMMISSIONS.—I am desired by the committee of the Secret Commissions and Bribery Prevention League, Incorporated, to warn your readers against the practice of certain foreign firms who are in the habit of offering British gardeners a secret commission. One catalogue, for which I have to thank a gardener, has the words written upon an inside page in pencil, "5 per cent. discount for head gardeners." Illustrations of such practices might easily be multiplied, but the object of this letter is to put those who employ gardeners on their guard, as some of the offending firms have neither agents nor travellers in this country, and the Prevention of Corruption Act, which prevents British firms from giving secret commissions, affords no remedy in such cases. *R. M. Leonard, Secretary of the Secret Commissions and Bribery Prevention League, Incorporated.*

ROSA HEMISPHERICA (p. 92).—If G. M. Taylor will consult Clusius or Parkinson he will find that Nicholson was quite correct in his account of the introduction of this Rose. *H. N. Ellacombe, Bilton Vicarage, Bristol.*

MUSSAENDA ERYTHROPHYLLA (see p. 95, fig. 43).—This plant was first distributed by the late Mr. William Bull of Chelsea, as long ago as 1888, and was figured in his catalogue for that year. It did not become popular, and after a time almost dropped out of cultivation. Within the last few years it has been more frequently met with in flower, and may yet prove to be a desirable garden plant. The creamy-yellow, five-pointed, star-shaped flowers with their ruby centres are very pretty, but extremely fugacious. The brilliantly-coloured sepals by which they are subtended are of a lasting nature, so that the plant remains an object of beauty for a considerable time. When first introduced to cultivation it was grown in the warmest part of the stove, under which conditions it grew freely but flowered seldom. In Messrs. Veitch's nursery at Felkham the plants are grown in a comparatively cool structure, with the result that flowers are freely produced. Cuttings root readily, and the young plants grow freely, but if the atmosphere is too hot and dry the leaves are liable to be attacked by red spider. In some parts of India it is employed as a bedding plant, the enlarged sepals being freely produced and brilliantly-coloured in that hot country. *W. T.*

"COX'S ORANGE PIPPIN."—Mr. Bunyard's note on this Apple (see p. 81) is very interesting and instructive, particularly in relation to *Sphaeria malorum*, one of the two leaf-spots to which Cox's Orange Pippin is specially subject. Mr. Bunyard's experience agrees with some American investigators in regarding this spot as a cause of canker. With respect to the need of avoiding the planting of Cox's Orange Pippin in large blocks, the question is as to whether the variety is self-pollinating or not. If it is, there seems to be no objection to planting in large blocks. In one orchard, I have 12 rows of the variety in one block, and one outside row, which has no Apple trees on the outside of it, is bearing as freely as the row on the other side next to trees of Mr. Gladstone, which are 144 feet distant. *A.*

—Mr. Bunyard expresses the opinion "that, for richness of flavour and digestible texture, this Apple is superseded by Roundway Magnum Bonum." I am aware that Mr. Bunyard holds a very high opinion of Roundway Magnum Bonum, and if his opinion is formed partly from its cooking qualities I will admit that it is a good-flavoured Apple in that respect. But how many who have grown the latter variety would regard it as equal to Cox's Orange Pippin? The fruit is too large for dessert purposes, and the variety has very little colour to recommend it for the table. Roundway Magnum Bonum is a good grower, but I have never found it a free cropper, and free growth alone is not sufficient to induce people to plant it. If this variety is so meritorious, how is it that it is not more generally cultivated? One seldom finds it in private gardens, and I believe Messrs. Bunyard's is the only firm which catalogue it; at any rate, that was the case in the past. American Mother is an excellent dessert variety. Lady Sudeley is fair, when eaten quickly after gathering. James Grieve is a nice-flavoured early Apple, and one which should be grown more extensively. Mr. Bunyard justly remarks that stocks are a most important matter in the cultivation of Cox's Orange Pippin, and also suitable land. Any variety of Apple grown on the approved Paradise stock (which is the approved stock) should be grafted sufficiently near to the ground to allow of the union being covered. We might then probably hear less of canker. I have saved more than one cankered Apple tree by replanting and covering the union, and this has also added to the vigour of the tree. *T. H. Slade.*

A HEAVY RAINFALL.—At New Barnet on Wednesday, July 26, during a thunderstorm, 2 inches of rain was registered. As much as 1.52 inch fell in 50 minutes. *A. M., Greenhill Park.*

THE HOLLYHOCK DISEASE.—What are the conditions favourable to the increase of *Puccinia malvacarum*, the Hollyhock disease? For many years it has, in the average garden, been almost impossible to retain any foliage on the plants. The flowers have usually been good, bright of colour, and fine in form, but they have been borne on bare poles. Various remedies have been tried, but still the rust quickly destroyed nearly every leaf. In a few instances seeds sown in the ground where the plants were intended to flower produced plants which survived the disease better than other plants did, but in far too many cases this change of method was ineffectual. But this summer one sees, in many different gardens, fine, stately Hollyhocks wreathed with beautiful flowers, and retaining large, rich leaves, almost, if not quite, to the ground. This welcome improvement naturally brings forth the inevitable "why." Can it be that, as often happens, the disease has worn itself out and is departing, almost as suddenly as it came, or is it that the Hollyhock rust has not found the weather conditions congenial? Chili, the home of the disease, is a country with a large annual rainfall and warm, moist summers, so that it seems reasonable to assume that as the disease was very abundant during the cycle of wet summers which we have just passed through, and that it is absent now, the conditions essential for its spread have been wanting. It has been demonstrated that when the carpels are attacked, the seeds produce diseased seedlings, so that it is quite possible to be entirely rid of the disease after another tropical summer, even though wet seasons follow. *A. C. Bartlett.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, ante, pp. 64-70.)

(Continued from page 87.)

2, ENGLAND, N.E.

YORKSHIRE.—The fruit crops in this district are below the average, with the exception of Apples and Strawberries, which are average, and Gooseberries and Currants, which are rather larger crops than usual. The profusion of blossom was remarkable but prolonged drought and cold nights affected the yield unfavourably. The bright sunshine and drying winds experienced since rain fell at the end of June have exhausted the soil of moisture, and all fruit trees are now feeling the effects of drought most seriously. Our soil is of a stiff nature, and rests on a subsoil of marl, clay and chalk. *F. Jordan, Warter Priory Gardens, York.*

—The prospects for a good fruit year were favourable at the time of blossoming, but the deficiency of the rainfall was responsible for many of the fruits dropping, particularly Plums, these trees being bare of fruits. Apples are above a usual crop and of good quality. Strawberries were plentiful and promised well till drought and brilliant sunshine caused the plants to become dried up. Our difficulties in a dry season may be imagined when I state that our garden is situated on the top of a hill, and our thin soil overlies sand and rag. Only those crops that have been watered copiously have done well this season. We have had 57 rainless days, between May 1 and July 10. *J. G. Wilson, Chevet Park Gardens, Wakefield.*

—Strawberries promised a heavy crop, but owing to drought the berries failed to swell. Gooseberries, Currants and Raspberries were all heavy crops. Pears are a very poor crop; the trees produced very little blossom. Apples set exceptionally well, and although many of the fruits fell owing to the drought, there are still too many on the trees to mature properly. The soil in these gardens is a heavy loam resting on clay with red sand below. A season such as this suits it well. *Jas. E. Huthaway, Baldersby Park Gardens, Thirsk.*

—Apples are a satisfactory crop, especially early varieties. Pears are very scarce, but the fruit are very clean. Gooseberries, Raspberries and Red Currants are all good crops. Black Currants are scarce, and the bushes are affected with blight. The Strawberry crop was adversely affected by the drought. *Geo. P. Bound, Grims-ton Park Gardens, Tadcaster.*

—All bush fruits, with the exception of Black Currants, are very good crops. Strawberries were satisfactory, but the season was soon over. The Apple crop is very promising; trees of Bramley's Seedling, Lane's Prince Albert, Bismarck and James Grieve are carrying heavy crops. Plums are looking well, but the Pear crop is a poor one. Apricots are almost a complete failure. Both Raspberries and Loganberries are carrying very heavy crops. Early Potatoes have given only half the usual crop, although late varieties are satisfactory. *A. E. Sutton, Castle Howard Gardens, Welburn.*

3, ENGLAND, E.

CAMBRIDGESHIRE.—The Apple crop is very satisfactory, and the trees and fruits are clean, especially where spraying was practised last winter. Ribston Pippin worked on the Paradise stock is always satisfactory in these gardens, and this year the trees are carrying a heavy crop, for although many fruits have fallen, there are plenty left. Pears are an irregular crop, and the same remark applies to Apricots. Plum trees on walls and in the open are carrying heavy crops. Peaches and Nectarines promised well in early spring, but on the morning of April 12 92 of frost were registered, and this spoiled the prospects. Black Currants are rather scarce; the bushes were attacked by aphid at the time the fruits were setting. Strawberries have been an abundant crop, and the fruits were of good quality. *W. J. Snell, Wimpole Hall Gardens, Boston.*

—All hardy fruit trees produced an abundance of blossom, but the long-continued drought

has been the cause of large numbers of Apple and Pear fruits dropping. We have given the trees copious supplies of water, and mulched them, to ensure the fruits swelling. Bush trees, four years old, of Cox's Orange Pippin, Ribston Pippin, Wealthy, Stirling Castle, Ecklinville Seedling, and Lord Suffield Apples are carrying good crops. Pear trees set only half a crop of fruits, owing to the cold north-east winds in April and May. Black aphid has been very troublesome on Cherry trees, necessitating much labour in syringing with the garden engine, and the applications of insecticides. The soil here is a strong loam, resting on the blue gault. T. W. Birkinshaw, Hatley Park Gardens, Gantingay.

—The Apple crop is a very thin one, the local Emmeth or Victoria being the best variety; Lord Grosvenor following closely. The Pear crop is a failure; of Plums there is only a half crop of Victoria and Belle de Louvain, and even less of The Czar. Cherries are fairly plentiful, but the fruits are small. Among small fruits, Gooseberries are about three-quarters of the usual crop. Red Currants are about half the average quantity; Black Currants are very scarce, but Raspberries are satisfactory. The Strawberry crop was a good one, the variety Lander being especially fine. Stephen Castle, Walpole St. Andrews, Wisbech.

ESSEX.—There will be an abundance of nearly all kinds of fruits in these gardens; Apples, Pears, and Plums being especially good. Of small fruits, the yield of Strawberries, Gooseberries, and Currants is the finest I have known here. Frosts occurred when the trees of Nectarines, Peaches, and Apricots were in bloom, and later a hailstorm of great severity damaged these crops, but notwithstanding this, the crops are fair. The prolonged drought during May and June is probably responsible for a medium crop only of Morello Cherries. Arthur Bullock, Copped Hall Gardens, Epping.

—The Apple crop promised early in the season to be an extra good one, but owing to the drought many of the fruits have fallen. Black Currants were almost a failure, owing to late frosts and hailstorms. Early Strawberries were very good, but late varieties did not finish their fruits well, owing to the drought. William Johnson, Stansted Hall Gardens, Stansted.

—Notwithstanding the effects of the dry weather that prevailed during the month of May and the early part of June, and occasional sharp frosts during the latter month, the crop of Apples must be pronounced as fairly satisfactory. Large trees of Hambleton's Deux Ans, Norfolk Beefing, Bramley's Seedling, and King of the Pippins are all carrying good crops of fine, clean fruit. Young trees of the following, bearing fair crops:—Stirling Castle, Ecklinville, Grenadier, Lord Grosvenor, Lord Derby, Early Victoria, Early Julyan, Lane's Prince, Albert, Emperor Alexander, Pot's Seedling, Lady Sudeley, and Warner's King. Pears, Plums, and Cherries are almost nil. Gooseberries are a good crop. Strawberries have been a good average crop. Royal Sovereign continues to bear satisfactory crops of fine, large, firm, well-flavoured fruits. Our soil is a sandy loam resting on a sandy-clay subsoil, the ground sloping southward, and is protected fairly well from the north and east. Altogether, the situation may be considered a favourable one. H. W. Ward, Lime House, Royleigh.

LINCOLNSHIRE.—The prospects of a good fruit year were most promising in the spring, but frost, blight, and a long spell of dry weather have thinned the crops of Peaches, Pears, Plums and Apricots very considerably. Black Currants, too, have suffered from blight most severely. Apples are a splendid crop, and, on the whole, of good quality, especially on trees that were sprayed during the winter and spring. I have never had Strawberries of better quality and flavour than those of this season. H. Vinden, Harlaxton Manor Gardens, Grantham.

—Up to the present time the fruit prospects in this locality are very satisfactory. At one period Cherry trees and Currant bushes were badly infested with green and black aphid, but after giving the foliage a thorough syringing with quassia extract the trees became clean and healthy, and the crops are very good. F. Barton, Hainton Hall Gardens, Lincoln.

NORFOLK.—Apples are falling very badly through the dry weather. Raspberries and Gooseberries are both splendid crops, but Black Currants were scarce. J. Wynn, Sedgford Hall Gardens, near King's Lynn.

—The fruit crops generally through Norfolk are very good. The very wet summer of 1910, in conjunction with the very light crop last season, caused the fruit trees and bushes to make strong growths, and fears were entertained generally that, owing to an absence of sunshine, the wood would not ripen. But towards the end of the autumn we experienced open, sunny weather, with the result that most of the wood ripened somewhat, with the exception of Pears. I never saw blossom more plentiful or finer than this spring, and the genial, sunny weather, with no frost, were ideal conditions for the fruits setting. The long period of drought, especially where the land is light, has caused Apples to drop, but there is an abundance of fruits left. The trees also are very clean. Lewis Smith, Shotesham Park Gardens, Norwich.

—Considering the dry weather, the fruit crops are very satisfactory. The rainfall in April amounted to only 1.05 inch, in May to 1.29 inch, in June to 2.71 inches, and from June to July 14, the date of writing, 0.04 inches. Aphid has been very troublesome on Plum trees and Black Currant bushes. A copious rainfall would prove most welcome. Our soil is a sandy loam. Wm. Allan, Gunton Park Gardens, Norwich.

—The whole of the fruit crops gave excellent promise early in the season, but drought and insect pests have since spoiled the prospects. Until about ten days ago the Apple crop was very good, now large numbers of the fruits are dropping. The Strawberry crop was a very heavy one, but the berries were soon over, especially those of the variety Fil Basket. Owing to the abundant sunshine the favour of Strawberries was very good. William Orr, Stow Hall Gardens, Downham.

—The promise for fruit in the early spring was exceptionally good, but late frosts, followed by drought in April and May, thinned the fruits of Apples, Pears and Black Currants. The rains in June benefited the Raspberry and Strawberry crops, which were above the average. We cultivate about 50 acres of fruit here, including Apples, Black Currants, Raspberries, and Strawberries. The soil is a rich, sandy loam. G. D. Davison, Westwick Gardens and Fruit Farm, Norwich.

SURREY.—Spring frosts did much damage to the Pear and Apricot crops in this neighbourhood, only those trees that were well protected escaping damage. Our soil is of a rather heavy nature, but good. Herbert Coster, Ickworth Park Gardens, Bury St. Edmunds.

—The fruit crops in this district are very good, with the exception of Pears, Plums, Peaches, Apricots and Cherries, which are average or, perhaps, slightly under. Bush fruits and Strawberries have been abundant and of good quality. The Strawberries Royal Sovereign and Givon's Late Prolific are the most satisfactory sorts in our heavy soil. Apples are a very heavy crop, the fruits requiring considerable thinning. Our soil is of a very heavy nature, and rests on a cold clay subsoil. James Hilson, Fitzton Hall Gardens, Bungay.

4. MIDLAND COUNTIES.

BEDFORDSHIRE.—The fruit crops in early spring were most promising. The trees blossomed abundantly, especially Apples and Pears, but, owing to cold winds and dry weather, many of the fruits dropped. Bush fruits are good, with the exception of Black Currants, which are very thin, and the bushes have been badly affected with aphid, the foliage and shoots requiring frequent washings. Strawberries are always a good crop on our heavy soil. Givon's Late Prolific furnished a late supply of brightly-coloured and highly-flavoured fruits. Plums are about an average crop, those of the Gage type being the most numerous. Brown Turkey Figs furnished a good late crop. The soil is too cold for Cherries, and needs to be especially prepared and drained for these fruits. F. J. Foster, Cranfield Court Gardens, Woburn Sands.

—The fruit crops generally are looking well in this district, with the exception of Black Currants, which are a complete failure. Apples are a better crop than they have been for three seasons, but many of the fruits are dropping, owing to the prolonged drought. C. J. Ellett, Chicksands Priory Gardens, Shefford.

—The hot, dry weather is causing Apples and Pears to drop very freely. Plums are very badly infested with aphid. Some trees are smothered with a blue-coloured fly. Our soil is a light loam on gravel. Potatoes look well, but I have detected disease here and there, and it would no doubt spread quickly if rain fell. H. W. Nutt, Amphill Road, Flitwick.

—There is a good average crop of all fruits this season, with the exception of Black Currants, which are not satisfactory in any part of the county. All other fruits are looking well. Apricot trees did not blossom freely, which may be attributed to the wet and sunless summer of 1910. The soil in the gardens is a light loam on a sandy and clay subsoil. George Mackinlay, West Park Gardens, Amphill.

—There was a wonderful show of blossom and no spring frost, but the fruits set badly, owing to the dry weather during the blooming period. Laxton Brothers, Bedford.

BUCKINGHAMSHIRE.—Although the crops of Apples are much below the average, the quality of the fruits is fairly good. Pears are almost a complete failure. The quality of bush fruit is good, excepting Black Currants, this crop being a very light one, and the quality poor. Early, mid-season, and late varieties of Strawberries gave average crops of good quality berries. Many orchard trees are badly blighted, and, on the whole, the crops in orchards are small. Our soil is a heavy, retentive loam, resting on clay, and the natural drainage is bad. W. Hedley Warren, Aston Clinton Gardens.

—The fruit crops in this neighbourhood are quite up to the average quantity, with the exception of Black Currants, which are largely grown as a market crop in these parts. The cold winds and frosts in spring caused the young fruits to drop, and, in many cases, the leaves also. Strawberries were plentiful and good, and late varieties are giving satisfactory crops. Apples, both culinary and dessert varieties, are good where the trees received proper attention in spraying. Cox's Orange Pippin, Ribston Pippin, Chas. Ross, Wealthy, and Lady Sudeley, amongst the dessert varieties, and Bramley's Seedling, Grenadier, Loddington, Tyler's Kernel, Pussgood's Nesuch, and Lane's Prince Albert are all carrying heavy crops of good, clean fruit. Plums of all kinds are a heavy crop, and require thinning. Walnuts, Cobnuts, and Filberts are all very good. Chas. Page, Dropmore Gardens, Maidenhead.

CHESHIRE.—We had a magnificent show of blossom on all fruit trees, which appeared, in most cases, to set their fruits satisfactorily; but the long period of drought during May and early June caused the trees to suffer, and, consequently, to cast much of their fruit. The rain of June 17, however, has saved, with few exceptions, good crops, which are clean and promising. Our soil is a light, sandy loam, resting on a gravelly subsoil. Charles Flack, Cholmondeley Castle Gardens, Malpas.

DERBYSHIRE.—The fruit crops in this district were badly affected by drought in the spring months. Apples are a heavy crop, but the fruits are reported to be falling very freely. Pears, Plums, and Damsons are scarce. Strawberries have been good in both crop and quality, although in districts where the soil is light they suffered from the drought. The rainfall at the end of June, beginning with the 17th, saved the Strawberry crop, and on the strong clay land it has been excellent. Loganberries are a very good crop. This I consider one of the very best of fruits for small gardens. From 10 plants, on the 10th of July, I made a gathering of 10 lbs., and there promises to be several 10 lbs. to follow. The fruits make excellent jelly; better than Black Currant jelly. Dr. Hogg and President Strawberries have been splendid in size and quality this dry season. Bailey Wadds, 181, Uttoxeter New Road, Derby.

HERTFORDSHIRE.—The Apple crop in this district at one time promised to be a very heavy one, but the hot dry weather caused many of the fruits to drop, some sorts much more than others. The following varieties are carrying an average crop. Bramley's Seedling, Fish-marck, Blenheim Pippin, Grenadier, Peasgood's Nonesuch, and Mère de Ménage. Varieties of Pears carrying the best crops are Doyenné du Comice, Pitmaston Duchess, Durondeau, Beurré Diel, Beurré Easter, and Beurré Bosc. Plums are a poor crop, the fruits being scarce in cases where the frost on June 15th damaged them. Small fruits are an excellent crop. Gooseberries, Red Currants, Strawberries, and Raspberries have all carried good crops. *C. E. Martin, The Two Gardens, Woburn.*

—Following the poor crop of last season, it is gratifying to state that, on the whole, the fruit crops here are good. In April and May we were seriously troubled with insect pests, but by careful spraying we have been able to secure the promise of clean fruits. A severe hailstorm on May 31 injured the foliage and badly damaged much of the fruit; we have been able, however, to thin generally to fruits that were little damaged. The crop of small fruits is exceptionally good in both quantity and quality. *H. Evans, Hatfield House Gardens.*

—The fruit crops in this locality are very disappointing, especially Apples and Pears, although the Apple trees flowered abundantly. No frost worth mentioning occurred, while they were in bloom, but in nearly all cases the fruits failed to set. I never considered the flowers were as strong as they should be, and the flowering period was somewhat later than usual. Pear trees failed to bloom satisfactory, but Plum trees were laden with blossoms. Peaches and Nectarines bloomed freely, but the fruits failed to set for the first time with us for many years. All kinds of bush fruit are good, and the bushes remarkably clean. Strawberries have never been better, the variety British Queen being especially good. The soil here is a stiff clay, and the gardens are 305 feet above the sea level; the situation is surrounded by hills. *Edwin Bicket, Aldenham House Gardens, Elstree.*

—The fruit crops generally are fairly satisfactory, with the exception of Apricots, which are almost nil. All stone fruits suffered from the effects of cold and a dry atmosphere early in May. Our soil is clay, partly on gravel and partly on chalk. The gardens are situated about 400 feet above the sea-level. *Wm. Whitcaw, Batchwood, St. Albans.*

LEICESTERSHIRE.—The Apple crop stands out as being the most abundant of our hardy fruits. Pears and Plums on wall trees are very short crops, although pyramid and standard in orchard give promise of an average crop. Of other stone fruit Peaches, Nectarines and Cherries are the best. Of small fruits Gooseberries and Raspberries are more than average crops. Red and Black Currants are scarce, especially the latter; owing to the drought in April and May many of the berries fell off. The Strawberries were much affected by the very hot days of early June. Our best Strawberries were gathered from plants of last autumn's planting, which confirms my opinion that by annual planting, especially in the case of Royal Sovereign, the best results are obtained. *Daniel Roberts, Prestwold Gardens, Loughborough.*

—Apple trees flowered abundantly and the fruits set very thickly. The weather at that stage was very bright, with cold north winds, but no frost. Within ten days a large quantity of the young fruits had dropped off, showing plainly that frost is not always the cause of fruits dropping. We have, however, sufficient fruit left, and some trees have too many. Pears are a thin crop, many trees having failed to flower. Plums are plentiful; the fruits set well, notwithstanding the cold weather. Peaches and Apricots flowered freely, and were well protected, as usual, but the exceptional cold weather early in April was too severe for them. On April 5 the minimum temperature was 27° and the maximum 35°, with showers of snow all day. We have experienced no day in April here so cold as that since our meteorological records were commenced, in 1876. Cherries are a heavy crop, following a very light one last year. The Straw-

berry crop was one of the best I have ever seen, notwithstanding the dry season. British Queen is still one of the best varieties, and Waterloo and Laxton's Latest continues the supply three weeks longer. Raspberries are a heavy crop. Gooseberries suffered severely from the cold in April. Insects have not been so troublesome this season as in some past years. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

—The fruit trees have been healthy until recently, but Plums are now blighted in many cases. Apples are healthy, strong, and clean, many sorts having fine crops. The severe frost of June 15 did considerable damage, and a fortnight's very low temperature afterwards retarded the growth of crops of all kinds. *John Harrison, Overdale Gardens, Aylestone, Leicester.*

(To be continued.)

SCOTLAND.

BIRD MIGRATION.

SOME exceedingly interesting results have been obtained in connection with the enquiry into bird migration now being carried out under the auspices of the Natural History Department of Aberdeen University. Aluminium rings have been placed on the legs of large numbers of young birds found in the nest, and on old ones. The following results obtained at an early stage of the work will serve to indicate how interesting the investigation is likely to prove. A song-thrush (*Turdus musicus*), one of a brood marked as chicks in the nest at Skeene, some seven or eight miles inland from Aberdeen, in early June, 1910, was shot near Leiria, Portugal, in early November of the same year. The two localities are about 1,250 English miles apart in direct overseas line. Six lapwings (*Vanellus vulgaris*) marked as chicks in the north-east of Scotland in the summer of 1910, were shot respectively in counties Tipperary, Roscommon, Cork, and Limerick, and two in Portugal during the winter of 1910-11. A widgion duckling (*Marca penelope*), one of five marked in June, 1909, on Loch Brora, Sutherlandshire, Scotland, was taken in a duck-decoy in the province of Groningen, north-eastern Holland, on September 3, 1909. A second member of the brood was shot on the Trent, near Retford, Lincolnshire, in January, 1911, having worn the ring for one and a half year. Seven herring gulls (*Larus argentatus*), marked as chicks on the cliffs about 20 miles north of Aberdeen in the summer of 1910 were shot at different localities on the east coast of Scotland and England in the following autumn and winter.

FRUIT REGISTER.

CHERRY FRUHEST DER MARK.

THIS new Cherry has been grown on the Continent for some years. In the district of Werder, near Berlin, it is considered to be the earliest yet introduced.

It is grown in France under the name of "La Plus Précoce de Marche," or, in error, "La Plus Précoce de Marché"—a natural mistake, "Mark," a district in the province of Brandenburg, being misread for markt (market).

Coming originally from Guben, where it was raised by Herr Kuppen, it was put in commerce by the firm of Spath, of Berlin, in 1887. Since that time its culture has extended rapidly, and this year, thanks, no doubt, to an exceptional spring, a Belgian grower marketed ripe fruit on May 29.

The fruit is of the Guigne type, and bears a good reputation for quality, and its bright rose colour will recommend it for market sale. It has been introduced into England, and should be tried in a warm soil to test its claims as the earliest Cherry grown. *Edward A. Bunyard.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

AUGUST 1.—Present: Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Messrs. E. M. Holmes, W. Cuthbertson, J. W. Odell, W. Hales, J. T. Bennett-Poe, J. Fraser, and F. J. Chittenden (hon. sec.).

Uncommon Orchids.—Mr. J. O'BRIEN drew attention to two uncommon Orchids shown by Sir TREVOR LAWRENCE—*Catasetum apterum*, which he regarded as nearly related to *C. splendens*, several varieties of which had been described, and *Eria mysorensis*, bearing pretty, small flowers, with a curious and rather unpleasant scent.

Antirrhinum, &c., malformed.—Mr. FRASER showed a flower of *Antirrhinum majus*, with the petals separated nearly to their bases, and therefore almost free. The flowers below it in the inflorescence were of normal structure. Two plants showed the peculiarity, but seed did not appear to be formed freely. He also showed *Gloxinia* flowers having petaloid outgrowths from near the base of the corolla, on its outer side, similar to those previously exhibited by Mr. ODELL of *Gloxinia* and *Streptocarpus*, and which Mr. ODELL had found in the former plant to be produced regularly every year.

Aconitum rostratum.—CAROL ELLACOMBE sent a fasciated branch of this rare, white-flowered Aconitum.

Cucumber with persistent flower.—Dr. G. WALLER, of Wimbledon, exhibited fruits of Cucumber, having the flower green, and persisting even when the fruit was fully grown. This is not a very uncommon occurrence in fruits of this family, but Dr. WALLER's plants sent showed it in a marked degree.

Sweet Pea with supernumerary carpels.—Mr. CUTHBERTSON mentioned the occurrence in the garden of E. H. CHRISTY, Esq., of Margareting, of Sweet Peas, having three pods produced from every flower in the variety Mrs. Hugh Dickson. The flowers appeared to be otherwise normal, but every flower on the plant produced three carpels, which had been noticed by Mr. A. IRELAND when examining Mr. CHRISTY's collection.

MORDEN COTTAGE GARDEN AND INDUSTRIAL.

AUGUST 2.—The 19th annual exhibition of this society was held in the pleasure ground of Morden Hall, the residence of Mr. G. E. Hatfield, on this date. The 1st prize and the Coronation medal offered for the best and most varied collection of garden produce in the show, was won by Mr. C. F. CUSS. The 2nd prize was awarded to Mr. E. PIERCEY, and the 3rd to Mr. A. LONGHURST. Mr. HATFIELD (gr. Mr. Alderman) arranged an attractive group of Caladiums, Colocas, Gloxinias and other plants, a well-grown Kentia being used in the background. At the opposite end of the same tent J. WORMALD, Esq. (gr. Mr. C. Gibson), displayed a group containing well-grown plants of *Lilium lancifolium rubrum*, *Achimenes*, *Begonias*, and blue and white forms of *Campanula pyramidalis*. An edging of *Coleus* and variegated *Panicum (Opilismenus)* completed the arrangement. The 1st prize for a decorated table was won by Mrs. LONGHURST, who employed *Gypsophila paniculata* and *Souvenir de Chas. Turner* Ivy-leaved *Pelargoniums*. Mrs. W. SARGANT gained the 2nd award with an arrangement of *Coreopsis*, *Gaillardia*, *Gypsophyla* and *Grasses*. Mrs. POUPART was very highly commended for an attractive exhibit of honey in sections and glass jars. The same exhibitor also gained the 1st prize for a lady's spray of pink Carnations backed with *Asparagus plumosus*. The 1st, 2nd, 3rd, and 4th prizes awarded for allotments were won by Messrs. H. COLLIER, A. LONGHURST, E. PIERCEY, and G. ROWE in the order named.

Messrs. D. S. THOMSON & SONS, Wimbledon, staged a non-competitive group comprised of several of the newer forms of *Nephrolepis*, *Todea africana*, also *Phlox Roebelinii* and other decorative Palms. The best collection of plants grown in a window box was exhibited by Mr. H. COLLIER.

SCOTTISH HORTICULTURAL.

AUGUST 1.—The monthly meeting of the above Association was held in the Goid Hall, 5, St. Andrew's Square, Edinburgh, on this date. Mr. Massie, the president, occupied the chair, and there were 70 members present.

The paper on this occasion was on "The Cultivation of the Perpetual-flowering Carnation," by Mr. Thomas Hay, superintendent of Green-wich Park (late of Hopetoun), and in the absence of the author it was read by the secretary.

The exhibits were:—Dwarf Polyantha Rose "Jessie" and French and African Marigolds, from Messrs. DOBBIE & Co., Edinburgh; pyramidal-trained Gooseberries, from Messrs. STORRIE & STORRIE, Cause of Gowrie Nurseries, Perthshire; Tomato Gilbert's Improved Sunrise and a seedling variety, Strawberries Givon's Late Prolific and The MacMahon, and Black Currant "Scarlett's Edina," from the City of Edinburgh District Committee's farm at Murieston, per Mr. CAIRNS, manager; *Eucomis punctata*, from Mr. A. JOHNSTONE, Hay Lodge, Edinburgh.

At the meeting on September 5 a paper will be read by Mr. Alex. Porter, Davidson's Mains, Midlothian, on "Montbretias."

Four new members were elected.

It was intimated that an address of welcome from the office-bearers and members of the Association had been forwarded to the Secretary for Scotland for presentation to the King on the occasion of Their Majesties' recent state visit to the city, and that a basket of Scotch-grown Roses had been presented to Her Majesty the Queen by the president and council.

MIDLAND CARNATION AND PICOTEE.

AUGUST 2, 3.—The 21st annual exhibition held at the Botanical Gardens, Edgbaston, on the above dates, was very much smaller than usual. The quality of the flowers, too, was below the average seen at Birmingham. Twenty-seven classes were provided for Carnations and Picotees, i.e., 13 for dressed flowers shown on boards and 14 for undressed flowers displayed in vases with their own foliage and buds. Prizes for Sweet Peas were also included.

DRESSED FLOWERS ON STANDS (OPEN).

In a class for 12 Self Carnations there were five exhibits. The 1st prize was won by Messrs. A. R. BROWN, LTD., Wychall Lane, King's Norton, with beautifully fresh flowers of the varieties Ann Hathaway, Mrs. G. Marshall, Elizabeth Shiffner, Mrs. R. B. Waite, Everest, Alfonso, W. H. Parton, Iberia, Cambria, Mrs. F. J. Johnston, Sydney and Royal Velvet. 2nd, Mr. C. J. WHITE, Walsall, who showed well-developed flowers of Blaizer, Mrs. Guy Seabright, John Knox, Miss Alley, Medox and Alice Woodward. 3rd, Mr. C. H. HERBERT, Acocks Green.

The best of six exhibits in a class for 12 Fancy Carnations were shown by Mr. A. W. JONES, Stechford, who had large, handsome flowers of Mrs. Leo Hunter, Linkman, Father o' Flynn, Liberté, Erl King, Lord Steyne, Gloriosa, Hengist, Pathfinder, Billy Barlow, Linkman (sport) and Queen Eleanor. 2nd, Messrs. A. R. BROWN, LTD. 3rd, Mr. HAYWARD MATHIAS, Medstead.

In the class for 12 Yellow-ground Picotees, the last-named exhibitor won the 1st prize with refined flowers of Libra, Onward, Iago, Mrs. W. Heriot, Ariel, Styx, Exquisite, Ida Pope, Corona, Lady Douglas Galton, Her Majesty and Alpha. 2nd, Messrs. A. R. BROWN, LTD. 3rd, Mr. C. H. HERBERT.

Messrs. A. R. BROWN, LTD., excelled in a class for 12 White-ground Picotees showing excellent flowers of Hon. Mrs. Kenyon, Fortrose, Muriel Stevens, Muriel Horton, Lavinia, Duchess of York, W. E. Dickson, Lady Ethel, Mrs. Sharp, Mrs. Gorton, Amy Robsart and John Smith. 2nd, Mr. C. H. HERBERT, whose flowers of Fortrose, Hon. Mrs. Kenyon, Amy Robsart and Favourite were meritorious. 3rd, Mr. C. J. WHITE. Messrs. A. R. BROWN, LTD., also won the 1st prize for 12 Flake or Bizarre Carnations, with good flowers of C. H. HERBERT, Gordon Lewis, Guardeman, Ophelia, George Rudd, Joseph Jester, Shamrock, George Melville, Pandora, Merry Thought, Barnaby Rudge and Edward Adams. 2nd, Mr. C. F. THURSTON, Wolverhampton. 3rd, Mr. HAYWARD MATHIAS.

DRESSED FLOWERS ON STANDS (AMATEURS).

For six Self Carnations Mr. F. W. GOODFELLOW, Walsall, was placed 1st with an even set of flowers of the varieties Blaizer, Elizabeth Shiffner, Anglia, Miss Willmott, W. H. Parton and Hadzor. 2nd, Rev. C. A. GOTTMALTZ, Droitwich.

Mr. F. W. GOODFELLOW also showed the best exhibit of six Fancy Carnations. The varieties Pathfinder, Mrs. Leo Hunter and Hidalgo were noteworthy. 2nd, Rev. C. A. GOTTMALTZ.

Mr. GOODFELLOW also won the 1st prizes in classes for (1) six Yellow-ground Picotees, and (2) six White-ground Picotees.

Mr. C. F. BUDENBERG, Marple, Cheshire, was the only exhibitor in a class for six Flake or Bizarre Carnations, and he well deserved the 1st prize awarded, as his flowers were large, shapely and very fresh.

In the three following classes reserved for amateurs who do not grow more than 300 plants, competition was very keen, no fewer than 25 exhibits being placed before the judges. Mr. J. B. WILLETS, Yardley, won the 1st prize for six White-ground Carnations or Picotees, with superb flowers of Lady Sybil, Maud Brown, Mrs. C. H. HERBERT, W. E. Dickson, Elaine and Favourite. 2nd, Mr. JOHN T. SMISTER, Denstone.

Mr. J. H. CAMM, Smethwick, was placed 1st in classes for (1) six Self Carnations and (2) six Yellow-ground Carnations or Picotees.

UNDRESSED FLOWERS SHOWN IN TREES (OPEN).

Although the undressed flowers were not very numerous, they were much appreciated by visitors. Messrs. A. R. BROWN, LTD., won the 1st prize in each of the four open classes. In the first class for six Self Carnations they had very fine flowers of Mrs. G. Marshall, Miss Alley, Crystal, Signal Light, Cambria and Ayesha. 2nd, Mr. C. H. HERBERT.

In Messrs. BROWN'S 1st prize stand in the next class for six varieties of Fancy Carnations, we noted grand blooms of Liberté, Becky Sharp and Clement. 2nd, Mr. C. J. WHITE. In a class for six varieties of Yellow-ground Picotees, Messrs. A. R. BROWN, LTD., beat Mr. C. H. HERBERT and Mr. HAYWARD, who were placed 2nd and 3rd respectively.

Messrs. BROWN were the only exhibitors in a class for White-ground Picotees. Their best varieties were Lady Sybil, Fortrose and W. E. Dickson.

BLOOMS SHOWN IN TREES (AMATEURS).

The most successful exhibitor in this section was Mr. C. F. BUDENBERG, Marple, Cheshire, who won 1st prizes in classes for (1) three varieties of Self Carnations, (2) three varieties of Fancy Carnations, (3) three varieties of Yellow-ground Picotees, and (4) three varieties of White-ground Picotees.

1st prize winners in the small amateur classes were Mr. W. ROGERSON, Mellor, Derbyshire, and Mr. W. C. FLANDERS, Derby.

PREMIER FLOWERS (DRESSED).

Bizarre Robert Houlgrave, shown by Mr. C. F. THURSTON; Flake George Melville, shown by Mr. C. F. THURSTON; Heavy-edged White-ground Picotee Clementine, shown by Mr. F. W. GOODFELLOW; Light or Wood-edge White-ground Picotee Fair Maiden, shown by Mr. F. W. GOODFELLOW; Heavy-edged Yellow-ground Picotee Corona, shown by Mr. HAYWARD MATHIAS; Light-edged Yellow-ground Picotee Exquisite, shown by Mr. HAYWARD MATHIAS; Yellow-ground Fancy Mrs. Leo Hunter, shown by Mr. A. W. JONES; Self Daffodil, shown by Mr. J. H. CAMM.

PREMIER FLOWERS (UNDRESSED).

Self Daffodil, shown by Mr. C. F. BUDENBERG; Fancy Hidalgo, shown by Mr. C. J. WHITE; Yellow-ground Picotee Exquisite, shown by Mr. HAYWARD MATHIAS; White-ground Picotee Lady Sybil, shown by Messrs. A. R. BROWN, LTD.

The Silver Medal offered to the exhibitor gaining the highest number of points in the open classes was won by Messrs. A. R. BROWN, LTD., with 204 points. Mr. C. H. HERBERT gained the Bronze Medal with 24 points. Mr. C. F. BUDENBERG secured the Silver Medal offered in the amateur classes with 116 points. The Bronze Medal was won by Mr. F. W. GOODFELLOW with 96 points. These medals were all given by the

Birmingham Botanical and Horticultural Society. The Midland Carnation Society's Silver Medal offered in the smaller classes was won by Mr. J. B. WILLETS with 68 points, and the Bronze Medal by Mr. W. ROGERSON with 60 points.

SWEET PEAS.

Prizes were provided for Sweet Peas by ROBERT SYDENHAM, LIMITED. For 12 varieties of 20 to 30 stems, Mr. A. TAYLOR, Olton, won the 1st prize. 2nd, Mr. E. DEAKIN, Hay Mills.

For six varieties, Mr. S. SMITH, Bournville, was placed 1st, and Miss JESSIE HIRST, Yardley, 2nd.

HONORARY EXHIBITS.

Messrs. GUNN & SONS, Olton, staged a large exhibit of Roses. (Silver-gilt Medal.)

Messrs. W. H. SIMPSON & SONS, Birmingham, showed a collection of Sweet Peas. (Silver Medal.)

Mr. ROBERT SYDENHAM, LIMITED, Edgbaston, showed Sweet Peas in pots.

Mrs. WALTER BARROW, Edgbaston, exhibited Gloxinias and Ferns.

WESTON-SUPER-MARE HORTICULTURAL.

AUGUST 3.—This society held its annual exhibition in the charming Grove Park and Glebe House grounds on this date. The groups and exhibits in the decorative classes were exceptionally good. Messrs. J. CYPHER & SONS, Cheltenham, were placed 1st for a group of plants arranged in a space of 100 square feet. The exhibit was far better than that shown at Cardiff by this firm, the Orchids being much fresher. 2nd, Mr. CORNELIUS, a local exhibitor. In the class for six stove and greenhouse-flowering plants, three flowering and three foliage kinds, Messrs. J. CYPHER were again placed 1st and Mr. CORNELIUS 2nd, with B. C. SHEPHERD, Bridgewater, 3rd. A challenge cup was offered in the class for a group of plants in a space of 75 square feet, arranged for effect. Mr. C. J. ELLIS, Weston Nursery, Weston-super-Mare, set up a most effective group and won the cup for the second year in succession. A magnificent plant of *Areca lutescens* crowned the centre, and from this hung *Hawatha* Roses and *Lilium lancifolium* album, whilst arranged in rustic mounds were some very finely coloured *Codibeums* and *Amaranthuses*. Choice flowering and stove foliage plants formed the groundwork, and the front was pleasingly broken and finished with well-berried plants of *Nertera depressa* and other suitable subjects. Messrs. W. BROOKS showed the best shower bouquet, and Mr. C. J. ELLIS the best shower bouquet of Carnations and best *espagne* of flowers.

The challenge cup offered for the exhibitor gaining the highest number of points in the show, a 1st to count three points, 2nd two points, and 3rd one point, was won by Mr. B. C. SHEPHERD, Bridgewater.

ROYAL LANCASHIRE AGRICULTURAL.

AUGUST 3-7.—The horticultural section of the Royal Lancashire Agricultural Society showed a considerable falling off this year, although the quality of the exhibits was good. Cut flowers and vegetables were very poorly represented. In the class for a group of miscellaneous plants, Messrs. JAMES CYPHER & SONS, Cheltenham, won the 1st prize for a well-finished exhibit, in which *Codibeums* (*Crotons*) played an important part. *Palms*, *Alcasias*, *Ixoras*, *Cattleyas*, and *Liliums* were all utilised to advantage. Mr. W. A. HOLMES, Chesterfield, was placed 2nd.

Messrs. CYPHER also won the 1st prize offered for 12 stove or greenhouse plants, staging *Kentia Fosteriana* and *australis*, *Lantana borbonica*, *Crotons*, *Warrenii* and *Flambeau*, *Clerodendron Balfouri*, *Allamanda nobilis*, *Erica obata* magnifica, *Statice intermedia* and other kinds. This firm also excelled in the class for 12 plants in pots not exceeding 10 inches in diameter. *Ixoras Pilgrimii* and *Regina* were exhibited splendidly.

The best six exotic Ferns were shown by J. W. McCARTNEY, Esq. (gr. Mr. W. Holms), *Nephrolepis Todeoides* and *Adiantum cuneatum* elegans being specially good.

Messrs. CYPHER led for six Orchids and Mr. W. HOLMS had the best specimen plant of an Orchid.

In the class for a table of cut flowers measuring 100 square feet, Mr. H. DICKSON won the

1st prize, which included a Silver Cup, for a charming collection of Roses. Mr. J. SAUL, Preston, also won a 1st prize for cut flowers, with good Lilliums, Gladioli, Hydrangeas, &c.

The best exhibits of 18 and 12 varieties of Sweet Peas in vases, were shown by Mr. F. HINDLEY, Lynton.

In the amateurs' section, Mr. EDGAR M. ALLEN showed the best six vases of Sweet Peas, and he was awarded the Silver Cup offered for the best collection of Sweet Peas exhibited by a grower in the county of Lancashire. Messrs. C. E. TAYLOR, Carnforth, Mr. F. H. SMITH, Preston, Mr. G. LAYWELL, Wigan, Mr. J. N. FELL, Preston, and Mr. J. HOWARTH, Bury, all won 1st prizes in this section.

Mr. C. F. WATERS, Balcombe, showed the best Carnations, and Messrs. H. CLARK & SON, Leeds, the best show and Cactus Dahlias.

Messrs. J. GIBSON & Co., Bedale, had the premier exhibit of hardy perennials in the open class, and Mr. F. J. SMITH excelled in the amateurs' section for hardy perennials.

Mr. HUGH DICKSON, Belfast, won the 1st prize in the class for 24 Roses, having bright, fresh blooms, and Messrs. ALEX DICKSON & SON, Newtownards, showed the best exhibit of 12 Roses.

J. B. WALMSLEY, Esq., Burnley (gr. Mr. J. Scholes), won the Silver Cup offered in the amateurs' classes for the best stand of these Roses from a garden in the county of Lancashire.

FRUIT AND VEGETABLES.

The Duke of PORTLAND, K.G. (gr. Mr. J. Gibson), showed the premier exhibit of 12 dishes, distinct. He had good bunches of Muscat of Alexandria and Madresfield Court Grapes, Crimson Galande and Bellegrave Peaches, Pineapple and Humbolt Nectarines, Royal Sovereign Melon, &c. 2nd, the Earl of HARRINGTON (gr. Mr. G. H. Goodacre).

The Duke of PORTLAND showed the best two bunches of black Grapes in the variety Madresfield Court. The Earl of HARRINGTON excelled in the classes for Black Hamburg, Foster's Seedling, and Muscat of Alexandria Grapes; this exhibitor had the best scarlet-fleshed Melon. The Duke of PORTLAND won the 1st prizes in the classes for a green-fleshed Melon, Six Peaches, six Nectarines, and six dessert Apples.

The Duke of PORTLAND secured the premier awards in the classes for nine distinct kinds and for six distinct kinds of vegetables, his Scarlet Runners, Peas, and Onions being excellent produce.

NON-COMPETITIVE EXHIBITS.

Gold Medals were awarded to Messrs. DICKSON, BROWN, and TAIT, Manchester, for a collection, of about 100 varieties of Tomatoes. This exhibit was an outstanding feature of the exhibition. This firm also showed Roses, Lilliums, Gladioli, and vegetables. Messrs. A. DICKSON & SONS, Newtownards, for a collection of Roses. Messrs. H. B. MAY & SONS, Edmonton, for a large collection of choice Ferns. Mr. R. BOLTON, Carnforth, for an imposing exhibit of Sweet Peas.

Silver Medals were awarded to Mr. H. MIDDLEHURST for Sweet Peas, and to Messrs. BOLTON BROS. for Ferns.

Messrs. CLIBURN showed Tomatoes, Peas, Beet, and other garden produce. Messrs. DICKSON & ROBINSON exhibited Scabious, Spiraeas, Gladioli, and other flowers.

PERTHSHIRE SWEET PEA.

AUGUST 4, 5.—The second annual exhibition of the Perthshire Sweet Pea Society was held in the City Hall on these dates. There was a large attendance of visitors in the afternoon, when Lady Dewar, who was accompanied by Sir John A. Dewar, Bart., M.P., performed the opening ceremony.

Considering the dry weather, the show, as a whole, was a remarkably fine one. We noted that one or two of last year's foremost exhibitors were absent, owing to the want of rain (rather unusual for Scotland). Mr. Fender, winner of the Champion Cup last year, was unable to stage a single vase, and yet the flowers shown in the cup class were of superb quality. The premier collection, shown by Mr. JOHN A. GRIGOR, Fortes, was exceptionally good. The flowers were large

and clean, the colours well defined, and the stems 15 to 18 inches long, yet the blooms had no suggestion of coarseness.

Mr. GRIGOR secured the highest awards in four other classes with flowers of equal merit. The varieties for which the cup was awarded were:

—Dobbie's Sunproof Crimson, Mrs. Hugh Dickson, Elsie Herbert, Nubian, Masterpiece, Mrs. W. J. Unwin, Etta Dyke, Edrom Beauty, Countess Spencer, Isobel Malcolm, John Ingman, and Earl Spencer. Mr. YOUNG's collection, of Falkland Palace, was only a point or so inferior to the 1st prize exhibit. In the small-growers' section, Mr. G. MILNE, of Montrose, was the most successful exhibitor, winning nearly all the 1st prizes. In the pink section, his vase of Hercules (probably the best vase in the show) was the admiration of everyone. Other outstanding prize-winners were Mr. JAMES DUTHIE, Dundee; Rev. H. MAYALL, Comrie; Mr. KIRKWOOD, Crieff; Mr. G. REID, Dundee; Mr. DEMPSTER, Dunkeld; and Mr. ADAMS, Brechin.

Miss A. B. MECHIE, of Perth, secured the 1st prize for a table decoration, with a peculiar combination of mauve Sweet Peas, to which a touch of pink was added.

For a display of Sweet Peas, open to the trade, Messrs. THYNE & SON, Dundee, were awarded the 1st prize, Messrs. YOUNG & Co., Elgin, being 2nd.

NON-COMPETITIVE EXHIBITS.

Messrs. DOBBIE & Co. put up a beautifully arranged bank of Sweet Peas, which included charming vases of Melba, Red Star, Mrs. Cuthbertson, Lady Knox, Dobbie's Cream, Elfrida Pearson, Dobbie's Thomas Stevenson, and May Campbell. (Gold Medal.)

Messrs. COCKER & SON, Aberdeen, supplied a pleasing change from Sweet Peas in a beautiful exhibit of Roses and hardy flowers. (Gold Medal.)

Messrs. HENDERSON & SON, Perth, exhibited Carnations and other flowers. (Silver Medal.)

Great interest was taken in the duplicate vase of Sweet Peas that won the *Daily Mail* prize of £1,000, also vases shown by Mr. FRASER and several silver medalists in that competition.

In the afternoon, a conference, which was largely attended, was held in the Lesser Hall, when a lecture on "Staging and Judging" was given by Mr. W. P. Wright, and Mr. Wm. Cuthbertson, of Messrs. Dobbie & Co., read an interesting paper on "New Sweet Peas."

PRESCOT HORTICULTURAL.

AUGUST 7.—The annual exhibition of this society was again held in Knowsley Park, the seat of the Earl of Derby. The entries were much fewer in numbers than usual. Mr. W. ROWLANDS' collection of Roses was an especial feature of the show.

In the class for a group of plants arranged for effect, F. DIXON-NUTTALL, Esq. (gr. Mr. W. H. Roberts), was awarded the 1st prize, his Caladiums, Palms, Codiadums, and Carnations being very good. 2nd, F. R. DIXON-NUTTALL, Esq. (gr. Mr. J. Barker).

The best two Palms were shown by T. HENSHAW, Esq. (gr. Mr. J. George).

For four stove or greenhouse plants J. STONE, Esq. (gr. Mr. D. McKelvie), excelled, his plants including a well-flowered specimen of Clerodendron Balfourii; 2nd, Mr. DIXON-NUTTALL.

Mr. D. MCKELVIE won the 1st prizes in the classes for four stove or greenhouse plants, four greenhouse plants in bloom, and one specimen plant in bloom, and a specimen foliage plant.

E. SHORROCK ECCLES, Esq. (gr. Mr. C. Houghton), won the 1st prize in the class for four Caladiums, followed closely by Mr. J. BARKER.

The best exhibit of four Begonias was made by F. C. HALL, Esq. (gr. Mr. E. Lambert), whilst Mr. J. BARKER had the best four Zonal-leaved Pelargoniums and single specimen of the same.

Mr. DIXON-NUTTALL excelled in the classes for three Fuchsias and for three Cereuses.

The leading awards for Roses were shared by Messrs. J. BARKER, C. Houghton, and J. EVANS.

Mr. J. GEORGE had the best herbaceous cut flowers, including Sweet Peas and Dahlias, and Mr. E. LAMBERT the best dozen Begonias.

Fruit was not shown largely. In the class for four dishes the prizewinners were Messrs. D. MCKENZIE, J. BRECHAM, Esq. (gr. Mr. W. Oldham), and Sir D. GAMBLE (gr. Mr. W. S. Barnes) in this order.

Mr. OLDHAM won the 1st prizes in both classes for Grapes with Madresfield Court and Buckland Sweetwater.

Mr. J. GEORGE had the best collection of nine varieties of vegetables; Messrs. W. J. ROBERTS and J. BARKER being 2nd and 3rd respectively.

WEST DERBY HORTICULTURAL.

AUGUST 9.—The annual exhibition of the above society, held on this date in glorious weather again provided a success. The use of the old show ground was again granted by the Rev. P. Stewart, and the tent was well filled with well-arranged exhibits. The schedule was a comprehensive one, embracing more than 100 classes.

Three exhibits were staged in the class for a group of plants in a space of 10 square feet. The 1st prize was won by Drs. TIDSWALL and INGALL (gr. Mr. G. Osborne); 2nd, A. H. JONES, Esq. (gr. Mr. H. Spencer); 3rd, Mr. H. OGDEN. Drs. TIDSWALL and INGALL also excelled in the classes for two and one Palms respectively, for four stove or greenhouse plants, for six table plants, 12 blooms of Roses, and 12 bunches of hardy annuals.

A silver Rose bowl was offered for the best collection of 12 varieties of Sweet Peas; it was won for the third time by Mr. J. B. NICHOLLS, and thus becomes his absolute property. The blooms were fresh and of moderate size.

R. R. HEAP, Esq. (gr. Mr. H. Osborne), showed the best six dishes of fruits, distinct, whilst for six dishes Messrs. TIDSWALL and INGALL were awarded the 1st prize, and these exhibitors beat all other competitors in the class for nine varieties of vegetables, distinct. In the class for six varieties of vegetables, H. MCCARTON, Esq. (gr. Mr. R. Cleaton), and D. CUNNINGHAM, Esq. (gr. Mr. S. Leith), were placed 1st and 2nd respectively.

DUTCH BULB GROWERS.

The following Awards have been made at the recent meetings of the Floral Committee, at Haarlem:—

AWARDS OF MERIT.

Leucanthemum maximum excelsum.—The flowers are pure white, and of large size.

Gladiolus "Electra".—This variety has flowers of a brilliant vermilion colour.

Gladiolus "Hohenzollern".—The flowers of this new variety are rosy-salmon, spotted with reddish-brown.

Gladiolus nanecianus "Willy Wigman".—A rosy-white variety, spotted with purple.

Gladiolus "Meteor".—The flowers are scarlet shaded with brownish-red.

Gladiolus nanecianus "Golden West".—A Californian variety; the brilliant orange flowers are spotted with carmine.

Gladiolus gandavensis "Ivorine".—A creamy-yellow variety.

Phlox decussata "Asia".—The flower-trusses are very large; the orange-coloured blossoms are shaded with carmine.

CATALOGUES RECEIVED.

BULBS.

DICKSON & ROBINSON, Cathedral Street, Manchester.
WILLIAM LAING, Sutton, Surrey.
BROWN & WILSON, 10, Market Place, Manchester.
DAVID W. THOMSON, 113, George Street, Edinburgh.
JOHN R. BOX, East Surrey Seed Warehouse, Croydon.
T. METHVEN & SONS, 15, Princes Street, Edinburgh.
J. R. PEARSON & SONS, Loddham, Notts.
FISHER, SON, & SERRAY, LTD., Handsworth, Sheffield.
LITTLE & BALLANTYNE, Carlisle.
W. DRUMMOND & SONS, LTD., Stirling.
JAMES VEITCH & SONS, LTD., Chelsea.
COOPER, TABER & CO., 90 & 92, Southwark Street, London—(Wholesale List).

MISCELLANEOUS.

BOLTON & PAUL, LTD., Garden Structures, Appliances and Sundries.

FOREIGN.

J. M. THORNBURN & Co., 33, Barclay Street, New York, U.S.A.—Seeds of American Trees and Shrubs.
HAAGE & SCHMIDT, Erfurt—Bulbs.
VILMORIN-ANDRIEU ET CIE, A. Quai de la Mégisserie—Garden Flowers and Seeds.

MARKETS.

COVEY GARDEN, August 9.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, or the kindness of several of the principal raisers, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Arums (see Rich- ardson)	3 0	—	Mignonette, per doz. bunches	3 0	—
Aster, white, per doz. bunches	3 0	1 0	Marigolds, per doz. bunches	—	—
— pink	3 0	5 0	— yellow	1 6	2 0
— purple	4 0	5 0	Nigella (Love-in-a- Mist)	1 0	1 6
Carnations, p. doz. bunches	—	—	Orchids, Cattleya, per doz.	18 0	24 0
— American, best	1 3	1 6	— Odontoglossum crispum	3 0	4 0
— smother, per doz. bunches	9 0	12 0	— Pelargonium, per dozen	—	—
— Carib, extra large crimson	2 0	—	— Zantedeschia	3 0	4 0
Centauria (Crown Bower), blue & white, per doz. bunches	1 6	2 0	— Double Scarlet	3 0	4 0
— white	1 6	2 0	— White	4 0	—
Coronilla, p. doz. bunches	1 6	2 0	— Richardia, per doz. bunches	3 0	—
— white	1 6	2 0	— Marigolds, 12 bloom- ing	0 9	1 6
— Bredon, per doz. bunches	1 6	2 0	— Frau Karl Druschki	0 9	1 6
— white	1 6	2 0	— Margaret	0 9	1 6
— Bredon, per doz. bunches	1 6	2 0	— Mrs. John Lang	1 0	1 6
— Brecklenburg, doz. spikes	1 6	2 0	— Liberty	1 0	1 6
Gypsophylla, double covered, per doz. bunches	6 0	—	— Niphetos	0 6	1 0
— single	6 0	—	— Richmond	1 0	1 6
— white	6 0	—	— Sunset	0 6	1 0
— white	6 0	—	— Statice, per dozen bunches	—	—
— white	6 0	—	— Marve	3 0	4 0
— white	6 0	—	— White	3 0	4 0
— white	6 0	—	— Stephanotis, 12 "pays"	2 0	—
— white	6 0	—	— Stock, white (Eng- lish), per doz. bunches	1 0	5 0
— white	6 0	—	— Tuberoses, gross	3 0	1 0
— white	6 0	—	— Tong, per doz.	0 4	—
— white	6 0	—	— Viola (small blue, Violet-like)	0 9	1 0
— white	6 0	—	— doz. bunches	0 9	1 0

Cut Potage, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Adiantum fern Macdonald	3 0	4 0	Croton foliage, var- ious, per doz. bunches	12 0	15 0
— best, per doz. bunches	3 0	4 0	— Cycas leaves, arti- ficial, per doz.	3 0	12 0
— medium, per doz. bunches	2 0	4 0	— Eupalia japonica, per bunch	1 0	1 6
— small, per doz. bunches	1 6	2 0	— Moss, per gross	6 0	—
— medium, doz. bunches	1 3	1 9	— Myrtle, dz. bells (English)	6 0	—
— small, doz. bunches	1 0	12 0	— small-leaved	6 0	—
— large, doz. bunches	3 0	4 0	— Similar, per bunch of 6 trails	1 3	1 6

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Aralia Sieboldii, p. doz.	6 0	7 0	Hydrangea, pink, — paniculata, per dozen	18 0	21 0
— Arancaria excelsa, per dozen	18 0	21 0	— Kentia Belmoreana, per dozen	12 0	15 0
— Asparagus plum- osus, per dozen	10 0	12 0	— Latania borbonica, per dozen	12 0	15 0
— Sprengerii	8 0	9 0	— Liriodendron longi- folium, per dozen	12 0	15 0
— Aspidistra, p. doz.	10 0	12 0	— Lantana camara, per dozen	12 0	15 0
— variegated	8 0	9 0	— Lonicera rubra, per dozen	12 0	15 0
— Coccos Weddellii, per dozen	10 0	12 0	— Pandanus Veitchii, per dozen	36 0	48 0
— anana, per dozen	18 0	21 0	— Pelargonium, per dozen	—	—
— Cyperus alterni- folius, per doz.	6 0	6 0	— Zonal	4 0	6 0
— Cyperus, per doz.	4 0	6 0	— Zonal	4 0	6 0
— Dracena, green, per dozen	10 0	12 0	— Philodendron, ripu- lica, each	2 6	10
— Ferns, in thumbs, per 100	8 0	12 0	— Spiraea (pink)	10 0	12 0
— in small and large 60's	12 0	20 0	— Verbena Miss Will- ington	6 0	—
— in 4's, per doz.	5 0	8 0	— white and blue	6 0	—
— in 12's, per doz.	10 0	15 0			
— Eucalyptus, per dozen	9 0	12 0			
— Fuchsia, per doz.	5 0	6 0			
— Geonoma gracilis, per dozen	6 0	6 0			
— Heliotropium, per dozen	4 0	5 0			

Fruit: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Apples (Eng- lish), per doz.	3 0	3 6	Apples (Australian), per doz.	5 6	6 6
— Bramley	3 0	3 6	— Dessert	5 6	6 6
— Cox's Orange	1 6	2 6			

Fruit: Average Wholesale Prices (continued).

	s.d.	s.d.		s.d.	s.d.
Apricots (French), per sieve	9 0	11 0	— Melons:		
Bananas, bunch:	10 0	12 0	— French Cantaloupe	2 0	3 0
— No. 1	9 0	10 0	— Valencia	12 0	15 0
— Extra	11 0	13 0	— Nectarines,		
— Giant	16 0	20 0	— selected	10 0	12 0
— Javanese, per dozen	8 1	3 8	— best	4 0	6 0
— Red coloured	9 0	12 0	— medium	2 0	3 0
— Jamaica Giant, per bunch	10 0	12 0	— Nuts, Almonds, p. bag	36 0	42 0
— Jamaica Ordini- ary, per box (3 doz.)	6 0	7 0	— Spanish, sack	16 0	—
— Cherries (Dutch), per sieve	3 0	4 6	— Brazil, new per cwt.	65 0	70 0
— Cranberries, per case (100 lbs.)	10 6	—	— Barcelona, per dozen	32 0	34 0
— Figs (Guernsey), per dozen	2 0	4 0	— Cocoanuts (100)	10 0	14 0
— (English), per dozen	0 9	1 0	— English Cobs per doz.	0 6	0 7
— Grape Fruit, case: — 30's	18 0	22 0	— Walnuts (green pickling)	2 0	2 3
— 4's	18 0	22 0	— Oranges, Murcia per case	19 0	20 0
— 6's	18 0	22 0	— Naples, case	8 0	12 0
— 8's	18 0	22 0	— African Natal seedless	8 0	12 0
— Grapes (English), per lb.	1 0	2 6	— Naartjes, p. try.	1 0	1 6
— Muscat of Alex- andria	1 0	2 6	— Pears (English), Chalks, per dozen	2 3	2 6
— Non-Hall	1 0	2 6	— (French), per sieve	2 0	2 6
— Madresfield	1 6	2 0	— Peaches (English), selected	10 0	12 0
— Court	1 6	2 0	— best	4 0	6 0
— Court Ham- burg	0 8	2 0	— medium	2 0	3 0
— Black Alicante	0 8	2 0	— (French), p.b.	1 4	2 0
— Gros Colman	1 0	1 6	— 4's sieve	6 0	8 0
— Gros Maron	1 0	1 6	— Pineapples	2 0	3 6
— Greengages (Span- ish), per box	1 6	2 6	— St. Michael	3 0	7 0
— 4's sieve	5 0	8 0	— per sieve:		
— Lem	5 0	8 0	— Early Rivers	4 6	5 0
— Messina (300), per case	18 0	30 0	— Jersey	2 0	3 0
— Mangoes, per doz.	3 0	12 0	— Orleans	4 6	5 6
— Melons (Guernsey)	1 0	2 0	— Ozars	4 6	5 0
— (English)	1 6	2 6	— (French)	4 0	6 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Artichokes (Globe), per dozen	2 0	2 6	Mustard and Cress, per dozen pun- nets	1 0	—
Beans (Jersey), lb.	0 2	0 3	Onions (Egyptian), per lb.	8 0	—
— (English), lb.	0 3	0 4	— Dutch, per bag	5 0	—
— (French), per bushel	3 0	—	— (Spanish) New per case	5 0	6 0
— per bushel	1 6	—	— (Spanish), cases	5 0	6 0
— Broad, bushel	3 6	4 0	— Parsley, 4's sieve	1 0	1 6
— Scarlet runners per bushel	4 0	4 6	— per doz. bun.	3 0	—
— Beetroot (new), per doz. bunches	2 0	3 0	— Peas (French), per packet	0 5	0 6
— Cabbages (English), per tally	3 6	—	— (Jersey), per lb.	2 6	3 0
— Carrots (English), per doz.	1 3	1 6	— (English), p. bs.	3 6	6 0
— Cauliflowers, p. doz.	1 0	1 6	— bags	6 0	20 0
— Chicory, per lb.	0 3	1 0	— Potatoes (Jersey), per cwt.	4 0	4 6
— Cucumbers, p. flat per bushel	6 0	7 6	— (Swiss), per cwt.	7 6	—
— Herbs (sweet), pkts., p. gross	7 0	—	— St. Malo	10 0	1 6
— Horseradish, 12 bunches	12 0	15 0	— Radishes (English), per doz.	1 0	—
— Leeks, per doz.	1 6	—	— Spinach, p. bushel	2 0	—
— Lettuce (French), per doz.	10 0	1 3	— (English), per doz.	2 6	3 0
— Marrows (Engl.), per dozen	2 0	2 6	— Selected, per 12 lbs.	2 6	3 0
— Marrows (English), per dozen	1 0	1 6	— Seconds, per 12 lbs.	1 6	2 0
— Mini, p. doz. bunches	3 0	—	— Turnips (English), per doz. bunches	3 0	4 0
— Mushrooms, p. lb.	1 0	1 3	— Watercress, p. dz. bunches	0 6	0 6
— broilers	1 0	1 3			

REMARKS.—English Apples are arriving in considerably increased quantities. Beauty of Bath and Quarrenden are selling freely, also large Culinary varieties. Black and Red Currants, Gooseberries and Cherries are finished. Tomatoes have been a shorter supply during the past week. The last consignment of Tasmanian Apples is yet unloaded at the docks owing to the strike—this is also the case with the first shipment of Californian Pears and Plums. The Grape trade this week has been brisk, at moderate prices. Supplies of Peaches and Nectarines have increased. Melons are plentiful and meeting with a good demand at much lower rates. Outdoor Figs are now obtainable in quantity at reasonable prices. E. H. R., Covent Garden, August 9, 1911.

New Potatoes.

	per cwt.	per cwt.		per cwt.	per cwt.
Kent's	4 5	5 6	Queen	5 0	5 3
— Sharp's Express	4 5	5 6	Blacklands	4 6	4 9
— Eclipse	4 5	5 6	Bedfords	4 6	5 3
— Epure	4 5	5 6	— Eclipse	4 6	5 3
— Lincoln's	4 5	5 6	— Epure	4 6	5 3
— Sharp's Express	4 5	5 6	— Epure	4 6	5 3
— Eclipse	4 5	5 6			
— Epure	4 5	5 6			

REMARKS.—Trade has improved and prices have advanced a little on account of a shorter supply. Edward J. Newborn, Covent Garden and St. Pancras, August 9, 1911.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending August 5, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—Over the country generally the weather last week was less settled than at any time since the close of June, but in the east and south-east of England the rainfall was again slight. Thunderstorms were experienced at various times in most districts, and were accompanied in a few cases by exceedingly heavy showers. The temperature was again above the normal, the excess amounting to more than 6° in England N.E., and the midland counties, and to 7° in England E. The highest of the maxima were observed in the earlier half of the week, and ranged from 88° in England E., and 85° in England S.E. to 75° in Scotland W., and to 74° in Ireland. The lowest readings were observed at times varying greatly in different localities. In the English Channel a barometer failed to fall below 57°, and in England N.E. and N.W. it did not fall below 58°, but in Ireland N. it sank to 45°, and in Scotland E. to 42°. The lowest grass readings reported were 37° at Llanganach Wells, 38, at Crabbie and 39° at Markree Castle.

The mean temperature of the sea was higher than in the corresponding week of last year, excepting round Shetland, where it was a trifle lower. On the English coasts the difference was rather considerable, and amounted to more than 8°. The mean values for the week ranged from 70° at Margate and 65° and upwards on the eastern and southern coasts of England, generally about 54° at Wick and to a trifle below 54° at Lerwick.

The rainfall was largely in excess of the average in most of the western districts, but a little below it in Scotland. Over the northern, eastern and central parts of Great Britain there was a general deficiency, and in many places in England E. and S.E. the amount was quite unappreciable. In the west the heaviest falls occurred on Friday and Saturday, on the former day 1.19 inch was collected at Holyhead, 1.4 inch at Falmouth and 1.5 inch at Bettws-y-Coed; while on the latter day 1.1 inch was registered at Southampton, 1.3 inch at Cullumpton and 1.4 inch at Liverpool.

The bright sunshine was in excess of the average in all districts excepting the English Channel. The percentage of the possible duration ranged from 59 in England E. and 57 in England S.E. to 36 in Ireland S., 34 in Scotland N., and 32 in Ireland N.

THE WEATHER IN WEST HERTS.

Week ending August 9.

The hottest day as yet recorded here.—The first few days of the past week proved only moderately warm, but on each of the last three days the temperature in the thermometer shade sank to 80°, and on the list of those days rose as high as 86°. The latter is about the highest reading as yet recorded here this year, but also higher than in any month during the 26 years over which my records at Berkhamstead extend. The nights proved warm, but, as in the two previous weeks, not remarkably so. At 2 feet deep the ground is now 4° warmer, and at 1 foot deep as much as 7° warmer than is seasonable. Some rain fell on two days of the week, but the amounts deposited proved insignificant. For more than five weeks no rainwater at all has now passed through either of the percolation gauges. The sun shone on an average for 72 hours a day, which is 12 hours a day in excess of the usual duration at this period of the year. As in the previous week the winds proved light, the direction being from the south-east, the readings of an ordinary thermomometer and one with its bulb kept constantly moist amounted at 3 p.m. to as much as 25°. On that occasion the air was, with two exceptions, drier than in any month during the past 26 years. E. M., Berkhamstead, Aug. 9, 1911.

DEBATING SOCIETY.

READING GARDENERS'.—The members of this association visited Wilton House, Salisbury, on July 26, on the occasion of the annual outing. The party, which numbered 100, was conducted through the mansion and gardens by Mr. Challis. At 4.45 p.m. farewell was taken of Wilton with many expressions of thanks to Mr. Challis. Those who had not been to the gardeners' meeting at Reading made the return journey early; the majority, however, broke the journey at Salisbury for the purpose of visiting the Cathedral. Reading was reached at 3.40, the excursion being pronounced one of the most successful and enjoyable ever promoted by the association.

GARDENING APPOINTMENTS.

[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is made, it will be placed in the "Gardeners' Orphan Fund," and will be thankfully received, and an acknowledgment made in these columns.]

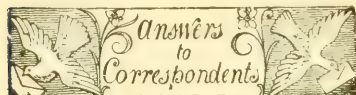
Mr. J. H. KEAT, for the past 2 years and 4 months Foreman at Broadlands, Blythe, Surrey, and previously Foreman at Hincham, Hants. (For further particulars see Mr. W. CLEVER, Esq., Ballard Combe, Combe Warren, Kingston-on-Thames.

Mr. H. S. BLACKWELL, for more than 3 years Foreman at Chevely Hill Gardens, Chevely, near Andover, Hampshire. (Thanks for donation of 2s. to R.G.O.F. box.—Eds.)

Obituary.

J. J. WILLIS.—We learn with sincere regret of the death of Mr. J. J. Willis, of the Rothamsted Experimental Station. Mr. Willis, who was 69 years of age, died on Wednesday, July 26, after a long illness. For 40 years he had been Botanical Assistant and Superintendent of the agricultural field experiments at Rothamsted. During this time he had witnessed, and in no small measure contributed to, the important work carried out by that station. Mr. Willis, despite the arduous nature of his official work, found time to write in a pleasing and simple manner on horticultural subjects. He was also co-author with Mr. J. C. Buckmaster of a work on the elementary principles of scientific agriculture. It was specially with reference to manures and manuring that Mr. Willis was an expert, and the series of articles on these subjects in Thompson's *Gardeners' Assistant* and those in Cassell's *Dictionary of Gardening* are from his pen. Mr. Willis took an active part in the life of the neighbourhood in which he lived so long. He was one of the early members of the Harpenden School Board, was honorary secretary to the village institute for 20 years; worked as teacher and superintendent in the Boys' Church Sunday School for no less than 40 years; was a member of the church choir and Secretary of the Temperance Society. Mr. Willis did all in his power, not only to make village life better and happier, but also to inculcate in his neighbours his own love for horticulture. He lectured in the various towns of his neighbourhood on agricultural and horticultural subjects, and was secretary of the Harpenden Horticultural Society for 28 years.

DAVID BUCHANAN.—The death of my father, David Buchanan, occurred on June 16, at the age of ninety years. He was, I believe, one of your earliest contributors. The gardens in which he was employed include: The Grange, Kilwinning, Ayrshire; Hanworth Park; Swallowfield, Berkshire; Bythe Hall, Norfolk; Botanic Garden, Regent's Park; Tanderagee Castle, Ireland; Groom's Nursery, Clapham; Dyrham Park, Bath; Sherwood Park, Tunbridge Wells. He came to Queensland, and was appointed manager of the first State Nursery. He retired from active work about ten years ago. *Frank Buchanan, Foreman, Sugar Experiment Station, Mackay, Queensland.*



••• The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

BEGONIAS UNHEALTHY: *W. E.* The roots are badly infested with eelworm. It is not advisable to try to save the plants, as the pest cannot be eradicated at this stage. They should be burned, and the soil in which they were growing sterilised by baking.

DESTRUCTION OF POND WEEDS: *H. W.* Sulphate of copper will destroy Algae and certain weeds in ponds. First procure a correct estimate of the quantity of water to be treated, and then use the sulphate of copper in the proportion of 1 lb. to 100,000 gallons of water. Place the powder in a bag and draw the bag over the surface of the water, so that the chemical will be evenly distributed. The quantity of copper sulphate advised will not injure Nymphææ. It may be necessary to repeat the application once or twice during the season. Failing this, raking frequently is the only means of keeping the water clear of weeds.

EMPLOYMENT AT KEW GARDENS: *H. H.* Apply to the Director, Royal Gardens, Kew, for a form of application. Names of applicants are entered in a book, and men whose capabilities are considered suitable are written to when there are vacancies.

FIGS: *R. O. F.* To fruit Figs satisfactorily, especially in the open, the ground should be firm and poor in quality; the trees frequently do best when planted by the side of a gravel path facing south or west. When carrying heavy crops of fruit, the trees should be liberally watered, using liquid manure water frequently. The growths should be kept well thinned and the foliage syringed thoroughly. We know of no special work dealing with the Fig.

NAMES OF FRUITS: *South.* The specimens of Apples were too immature for naming. Send fruits again later in the season.—*E. Lazenby.* Apple Red Astrachan.—*G. Miller.* Apples: 1, The Queen; 2, Jolly Beggar.—*Dr. P. Teneriffe.* The Peach is probably one of the Blood Peaches, such as you sent in June last. The specimen had turned black, and was not in a good condition for identifying.

NAMES OF PLANTS: *John E. Parker.* *Echium vulgare*.—*A. W.* 1, *Lysimachia vulgaris*; 2, *Sidalea candida*; 3, *Epilobium hirsutum*; 4, *E. angustifolium*; 5, *Anthemis inodora* var. *flora plena*; 6, *Polygonum cuspidatum*.—*K. & B. Asclepias syriaca* (Cornuti).—*W. J. W., Ltd.* Probably *Lavatera* sp., but the specimen was much too withered to be identified.—*B. G. A.* *Chironia linoides* *Foreman*. 1, *Catasetum Darwinianum*; 2, *Gongora quinquenervis*; 3, *Oncidium sessile*;



THE LATE J. J. WILLIS.

4, *Oncidium tetrapetalum*.—*D. M.* 1, *Veronica spicata*; 2, *Mimulus cardinalis*.—*H. H.* 1, *Davallia parvula*; 2, *Onychium japonicum*; 3, *Asplenium flaccidum*; 4, *Hymenophyllum unilaterale*.—*P. W. S.* 1, *Ceanothus* species; 2, *Ligustrum japonicum*; 3, *Pittosporum Tobira*; 4, *Spiraea Lindleyana*; 5, *Paulownia imperialis*; 6, *Erythrina Crista-galli*.—*H. W.* *Veronica cupressoides* var. *salicornioides*.

"ODDEN'S GOLDEN" PLUM: *W. P. P.* We cannot trace this variety in any work on Plums. If there is no apparent distinction between the two sorts you name, do not exhibit them as separate varieties.

PEACHES DECAYING: *E. L.* The rotting of the fruits is due to Peach mildew. Spray the trees next spring, when the leaves are unfolding, with liver of sulphur, 1 ounce in 3 gallons of water, and repeat the spraying at intervals.

PLANTS FOR A GARDEN ON A CHALK HILL-SIDE: *A. C. B.* Many garden plants will grow well in a chalk soil. Any borders or shrubberies should be trenched 2 feet deep, keeping the top spit of loam on the top. Dear though manure may be, a rail-truck full of horse and cow manure worked in as the ground is prepared will prove profitable. Such shrubs as Privet, Veronica, Lilac, Scotch and Rugosa Roses, Sweet Briar, Syringa, Tamarisk, Escalonia, Euonymus, Pyrus japonica, Myrtles,

Austrian Pines, Osmanthus, Shrubby Spireas, Cornus (Red Dogwood), Beech, Sycamore and Yews may be planted. Of border flowers select Sweet Williams, Wallflowers, *Doronicum*, Stocks, *Scabiosa caucasica*, Pinks and Carnations, German Iris, Campanulas, Helenium, Lupinus polyphyllus, Heucheras, Iberis, Cistus, Coreopsis and Michaelmas Daisies. Nearly all annuals and plants usually bedded may be included. The following plants are suitable for training on walls: Clematis, Climbing Roses, Jasmine, Solanum jasminoides, Penzance Sweet Briars, Ceanothus, and Bignonia radicans. For Roses against walls manure is imperative.

PLANTS FOR SHADY POSITIONS: *L. T.* (a) The following plants are suitable for growing on a shady border:—*Aconitum Napellus*, *A. Wilsonii*, *Hemerocallis flava*, *H. fulva* and vars., *Helleborus orientalis* (Lent Lily), *Lilium Martagon*, *L. pyrenaicum*, *Funkia ovata*, *F. Sieboldiana*, *Rodgersia podophylla*, *Sidalea candida*, *Polygonatum giganteum* (Solomon's Seal), *Convallaria majalis* (Lily of the Valley), and *Campanula latifolia*. (b) For a shady rockery:—*Primula denticulata*, *P. pulverulenta*, *P. rosea*, *Gentiana asclepiadea*, *G. septemfida*, *Epimedium pinnatum*, *Saxifraga umbrosa*, *S. hypnoides*, *Campanula Portenschlagiana*, *C. carpatia* (turbinate), *Arabis albidia*, *Phlox amena*, and *P. reptans* are suitable.

SOLANUM WENDLANDII: *Z.* This plant may be grown from cuttings inserted in very sandy soil in a warm propagating frame. Use a mixture of good fibrous loam, leaf-soil, and sand for potting the cuttings when they have rooted. Grow them on in a warm greenhouse or heated frame, affording larger pots as required. To obtain small plants for flowering in pots, it will be necessary to stop the growths frequently.

SWEET PEAS: *Anzions.* As you intend to exhibit blooms on August 17, the flowers should be cut to prevent pods forming. Your suggestion to pinch out the points of the shoots may be adopted, as this will improve the size of the flowers and length of stem. Syringe the foliage at night-time. If soft water and manure water is applied to the roots twice a week the colour and substance of the flowers will be improved.

TOMATO BLACK ROT: *G. W. B.* The Tomatos sent us are attacked with the "Black Rot" (*Macrosporium* Tomato). The disease is sometimes caused by extremes in respect to the affording of water. The use of green manure, or anything that is likely to cause the fruits to crack, should be guarded against. Fruits that show signs of the disease should be removed and burned, and the plants sprayed occasionally with potassium sulphide, particularly when they are setting their fruits. Avoid having too much moisture in the atmosphere, and open the ventilators to renew the air when the weather is favourable. Soil should not be taken from the Tomato house to use for cultivating Potatoes, or soil in which Potatoes have grown for the cultivation of Tomatos.

TOMATOS NOT RIPENING SATISFACTORILY: *A. B. C.* The hard, unripened patches on the fruits are due to an absence of sulphide of potassium in the soil. The defect is not caused by disease, and may be overcome by watering the roots at intervals of three days with a solution composed of 1 ounce of the substance mentioned mixed in 1 gallon of water.

TRAPPING MOLES: *S. T.* The traps should be set near the ends of newly-made runs, not those which have just been commenced.

TREE CARNATIONS: *E. T.* Tree Carnations will not flower satisfactorily in a temperature of 45° in winter, and although 50° might give satisfaction in some districts, it is better to maintain a temperature of 55°. For pot-culture in a greenhouse we would recommend the following 12 varieties:—*Briannia*, *Caecilia*, *Enchantress*, *Flamingo*, *Harlowarden*, *Lady Alington*, *Lady Bountiful*, *May Day*, *Mrs. Burnett*, *R. F. Felton*, *White Enchantress*, and *Winsor*.

Communications Received. *E. H. W.*—Colonel G. A. G.—*W. G. H.*—*Glen*—*F. T. Miss E.*—*P. S. M. H. M.*—*Enfield*—*R. I. L.*—*B. H. D.*—*Co.*—*P. H. & Co.*—*F. E. N.*—*G. W. W.*—*A. R. S.*—*G. & W. B. S.*—*P. W. C.*—*W. P.*—*Son W. P.*

THE Gardeners' Chronicle

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THE FRAGILITY OF FLOWERS.

THE fragility of flowers is a common-place fact so universally recognised as to have become proverbial. Within the closely-circumscribed limits of suitable conditions, their loveliness may endure for a comparatively long time; but, disturb these conditions, and the petals fall as though by resentful magic! The evanescence of floral beauty is so striking that the poets have made it the example of mortal joy in general:

Pleasures are like Poppies spread;
You seize the flower, the bloom is shed. . .

To the poet and to the ordinary mortal, this capriciousness appears as the inevitable expression of delicate grace—the defect of the quality of loveliness. The man of science, who is apt to seek utility even in beauty, inclines rather to the view that the graces of form and colour of our flowers are but means to ends—lures to pollinating insects—and he searches for the explanation of the evanescence of flowers in terms of usefulness. When their work is done, when the pollen, ensconced on the stigma, begins to quicken into life, the plant, having no longer use for them, casts off the petals or lets them fade. And indeed there is a certain measure of support for this severe and practical view. We know that the fading, or casting off of

petals follows, in many flowers, quickly on pollination, and gardeners resort sometimes to the expedient of removing the stamens and pistils from the flowers whose bloom they wish to preserve for yet a few more days. We may see on all hands how Nature at times sacrifices the beauty of the flower to the imperious need of propagation. Among the Loranthes of tropical countries the flowers remain closed till a bird of bright intelligence comes flying fast against them. Then at the impact the flowers open with an explosive movement, and, in some species, fling their petal lobes and stamens full in the face of the intruder. He, intent on nectar, gives no heed to the dusty rebuff, but seeks the sugary fluid stored in the long tube of the corolla. Then he flies away and commits a like sacrilege on another Loranthus flower and, incidentally, transfers the pollen from the first to the stigma of the second blossom which opens perforce to his assault.

Yet, though such curious facts could be multiplied indefinitely, other and equally curious facts point rather in the direction of the view of the poet and ordinary man and away from the calculating utilitarianism of the man of science.

For example, it suffices only to cover a potato flower with one of the light muslin bags used by the plant breeder for excluding insects from the flowers on which he wishes to operate to ensure the fall of the flower. Nor, be it remembered, is the fall an accidental one, but rather the flower, thus ensnared, is cast off swiftly and cleanly by the formation of a layer of cork in the flower-stalk. The flowers of Sweet Peas are similarly intolerant of the breeder's methods, although, on the other hand, to most flowers, the removal of petals and stamens is a matter of indifference so far as retention of the power of seed-formation is concerned. Most plants suffer the loss of both stamens and pistils without showing signs of premature withering, but in some—*Erodium Manescavi*, for example—a slight damage of the stigma suffices to cause the petals to fall within about an hour. Many are the hostesses who have had to deplore the capriciousness of floral beauty in seeing their table decorations, lovely enough before, fade and fall as soon as the gas was lit. On the other hand, this same capricious casting off of the petals was the designer of a charming scheme of table decoration at a banquet some weeks since. Certain Pelargoniums had been chosen as the flower for ornamenting the tables. The dining-hall was warmed with oil stoves. The fumes no sooner reached the flowers than they began to cast off one by one their petals, which fell upon the cloth beneath and lay there radiant. The florist knows well the frailness of many of the flowers he sells, and introduces skillfully a quick-setting gum, which holds the petals, prone to fall, in their place.

Chief among the agents which excite the plant to cast off its petals are coal gas and carbon-dioxide. Professor Fitting finds, for example, that the traces of coal gas which occurs in the air of ordinary

laboratories are sufficient to cause *Geranum pyrenaicum* to exfoliate its floral leaves in the course of a few hours. Carbon-dioxide is yet more potent, and if only some 4 or 5 per cent. of this gas is added to the air in which the flowers are confined a shower of petals falls in an extraordinary short time.

The older flowers are affected first; within 10 or 12 minutes of their exposure to carbon-dioxide their petals are cast off. The younger flowers react no less certainly, though less quickly, and it may be several hours before they have shed their petals. Tobacco smoke and acid fumes, chloroform and ether are also potent agents in inciting plants to the unnatural deed of discarding their blossoms, and even a transference to a very hot room, for example, one of a temperature of about 40° C. suffices to cause the petals of many plants to fall within a few minutes. Again some flowers succumb in similar fashion to shaking; *Verbascum thapsiforme*, for example, when shaken somewhat vigorously, throws off its petals almost like a Dandelion sheds its fruits.

These reactions are no mere physical reactions; the shaking does not shake the petals off, the warmth does not cause the petals first to fade and then to fall, the gas does not act by first doing violent damage to the plant. They are but agents which serve to stir the plant up to do what might almost be called the deliberate work of exfoliation of petals. Sometimes, indeed, no external agent at all need be called in to produce the premature fall of petals. It is habitual with some flowers to discard their corollas before the constituent petals are fully grown and before the stigma is mature.

The fragility of flowers, then, is a more capricious and subtle thing than either the poet or the man of science is apt to think! At times this frailness appears to be the fault of grace, and at times the sign of the consummation of pollination. Attached by the most delicate rows of living cells to the tissues of the flower-stalk, the petals stand like acrobats on acrobats poised with consummate delicacy, a very little suffices to disturb their unstable equilibrium; slight changes, which occur when pollination has taken place and the pollen grains begin to grow, suffice to signal to the plant to throw off its trappings, which are now rather a hindrance than a help, since they may again lure insects to do the work which has been done already. The leading acrobat, as it were, casts off the lighter members of the troupe balanced on his shoulders. Or a slight external change of conditions, just as it may spoil the human performance, may also bring the petals falling like leaves to the ground. The poet's view is right, that grace must needs be fragile; the view of the man of science is also right, that the plant continues to draw advantage even from the fragility of those members which, for special ends, it constructs and endows with matchless gracefulness. In the present day the man of science is, as he has been always, a pioneer in providing the raw material of facts and ideas for the poets of the time to come.

NEW OR NOTEWORTHY PLANTS.

MONTANOA WERCKLEI, n. sp.*

THIS new species is a shrub about 6 metres high, with large, elegant leaves and white, tomentose branches. The flowers appear from December to January, and although not quite so large and showy as those of *M. bipinnatifida*, are yet very pretty and elegant, each about 2 inches across. They are arranged in broad corymbs on tomentose pedicels.

The tomentum of the branches is of a delicate, almost cobwebby nature. It extends from the branches along the upper margins of the channelled petioles, and is very conspicuous in the younger parts of the plant, but when older it gets washed off, and finally disappears on the old wood.

The leaves have patent petioles 6-7 inches long, with the blade somewhat drooping. This is about 8-10 inches long and broad, 5-7 lobed, with a more-or-less cordate base, near which two little patent or reflexed leaflets are attached, whence the leaf ought to be considered as very unequally pinnate or trifoliate. The leaflets do not exceed 1½ inch in length, and are generally much smaller in the upper leaves, and finally disappear. The leaves are softly pubescent, the lobes pointed and coarsely dentate.

This plant was grown from seeds kindly sent to us by Mr. C. Werckle, of San José in Costa Rica, in 1905. In its native land it is known as Toona quirita. The plant grows quickly, and seems to be as hardy as *M. bipinnatifida*, which is much planted along the Riviera, and generally in great beauty at Christmas. *A. Berger.*

CAMASSIA LEICHTLINII.

THE Camassias, which are natives of North America, and quite hardy, are ornamental subjects for borders and beds, and are particularly valuable plants for the wild garden, since they associate excellently with the herbage and are able to hold their own against the natural vegetation. The specimen shown in fig. 56 is the ivory-white form of *Camassia Leichtlinii*, which has a very ornamental effect in the border. The leaves are about 2 feet in length, and the bold flower-spikes, about 4 feet in height, carry nearly 100 flowers, each about 2 inches in diameter, with evenly-disposed, lanceolate petals. The upper 2 feet of the flower-spoke is covered with blossoms arranged in a light and graceful manner. The projecting styles and stamens add greatly to the effect of the blossoms. *Camassia Leichtlinii* is very variable, and there are several forms. One, named *alba*, is pure white and a magnificent plant, the blossoms appearing as if frosted. The variety *atrocerulea* bears dark purple-blue, broad-petalled, star-like flowers of large size, and is one of the finest of the Camassias, being stouter and taller than the type. Other Camassias are *C. esculenta*, styled by the Indians, who eat the roots, Quamash. The plant grows 18 inches in height, and bears from 20 to 30 purple-blue flowers, each 1 inch across. It is useful for massing in the wild-garden, and grows well in the grass. Of this there is also a white

form. *C. Cusickii* attains to a height of about 4 feet, and the upper 2 feet of the flower-spoke is densely studded with upwards of 100 lavender-blue flowers, having yellow anthers. The individual blossoms are starlike in shape and 1 inch in diameter, and are closely packed together. The leaves are glaucous, 2 feet in length, and 2 inches in breadth. The bulb is the largest of any species, and is described as

lanceolate petals. The anthers are very large, rich golden-yellow in colour, and set off the blue of the flowers most effectively. It is the latest of the race to bloom. *C. Brownii* grows 3 feet in height. The flowers of this species are 2 inches in diameter, and lavender-blue-coloured, with many metallic tints on both sides. The richness of the blossoms is due to their changeable hues, according to the strength of the light.



[Photograph by Wyndham Fitzhugh.]
FIG. 56.—CAMASSIA LEICHTLINII FLOWERING IN DEVONSHIRE.

growing on mountain slopes instead of in meadows where the other species are found. It is the earliest of its race to flower, and is sometimes injured by late spring frosts. *C. Fraseri* is a comparatively slender plant 18 inches in height, bearing pale, porcelain-blue flowers less than an inch across. *C. montanum* is intermediate between *C. esculenta* and *C. Leichtlinii*, and produces dense spikes, each bearing about 50 flowers, the individual blossoms being an inch across, and having

The spikes are of noble appearance, and contrast well with those of the *Eremuri*.

The culture of the Camassias is exceedingly simple; they will grow anywhere in good soil, and require but a minimum of attention. They should be planted in good-sized colonies, and not singly, as an isolated specimen has but a poor effect. They appear to excellent advantage when associated with *Eremuri*. Camassias do not produce many off-sets, so that propagation by that

* MONTANOA WERCKLEI BIEBER. n. sp. ex altitudine *M. grandiflorae* DC. Prodr. V. 565.—Frutx ramis cylindricis cicutricibus foliorum annulatis, internodiis 3.7 cm. et ultra longis, in partibus junioribus tomento arachnoideo-lanoso albo dense vestitus, demum glabrescens. Folia opposita, petioli c. basi carnosu-subemplexicauli canaliculati patent, arachnoideo-tomentosi, folia caulina imparipinnata vel trifoliolata, foliolo terminali multo majore, reliquis lateralibus fere auriculatis, basi subcordatis, 6-7 lobatis, lobis ovatis acuminatis subtrilobatis, sinibus obtusis, nervis tribus majoribus subius prominentibus percurso, crenatodentato, utrinque mollior pubescente, foliola lateralalia lanceolata, parvula vel reflexa. Inflorescentia corymbosa multiflora, pedunculis tomentosis, inferioribus bracteatis lanceolatis imbricatis, involucris quamvis exteriores ovato-lanceolatae acutae, interiores ovato-cuspidatae; ligulae 8-10 oblianceolatae acutae, 21 mm. longae et 9 mm. latae.

Costa Rica, c. cernubus a cl. Carolo Werckle anno 1905 missis in Herbo Martiana culta. Floret mensibus Dec.-Jan.

means is slow, but they may be easily raised by the thousand from seed, and the seedlings will reach the flowering stage in their fourth or fifth year. As a rule, the flower-spikes of the Camassias retain their beauty for a considerable time, but this year, owing to the severe drought and heat, they faded in three days. *Wynneham Fitzherbert.*

THE ROSARY.

CULTURAL NOTES FOR AUGUST.

Budding may still be done, but it will be advisable to water the stocks for some time after the buds have been inserted as it is essential that the flow of sap shall not cease at this stage. A large proportion of failures in budding may be expected this year owing to the exceptional hot weather. Examine the budded stocks for failures, and insert fresh buds as advised in my last notes. One of the most important points is to continue the application of water to the roots, especially if weak liquid manure has been afforded freely whilst the plants were in full growth, for dry conditions at the roots will favour an attack of mildew; as, indeed, will any sudden change in the treatment of the plants.

The blooms should be removed as soon as their beauty is over, since the formation of seed pods is an exhausting process. Summer pruning calls for attention this month. In doing this work the habit and general characteristics of the individual plants must be taken into account. Most of the strong-growing varieties bloom only once in profusion; in their case the old flowering shoots need to be removed with a view to securing long healthy growths of the current year for next season's blooming. The shoots of Crimson, Blush, and Philadelphia Ramblers need thinning, removing the old flowering branches, which are now of little value. Dorothy Perkins and others of the same type should have the exhausted wood removed, to favour the development of the new growths, and prevent overcropping. Some few of the Wichuraiana Roses, such as Madame Alice Garnier, Delight, and François Foucard, are more constant in blooming, and these must be pruned carefully. Many Roses trained on walls and arches may be thinned with advantage at this stage. In the cases of William Allen Richardson and Madame Alfred Carrière it would be unwise to cut away many of the shoots because they flower well on lateral growths.

PROPAGATING ROSES FROM CUTTINGS.

Half-ripened shoots suitable for cuttings are plentiful this season. Do not make the cuttings too long, and plant them deeply in a partially-shaded border, in a sandy loam, which must not be allowed to become dry. Shoots of Tea, China and certain of the strong-growing varieties of other types will root freely during August and September, but I prefer to plant in August if suitable shoots are available. Where the planting of beds of Roses is contemplated and the ground already available, the preparation for the work may be commenced. Deep digging should be practised; bastard trenching being advisable. The subsoil should be drained if necessary, although this is not practised by rose-growers so frequently as formerly. Incorporate a good quantity of manure in the bottom of the trench, nothing being better than pig dung, the next best material being well-rotted farmyard manure. Much will depend upon the nature of the soil; if it is stiff and heavy, use lighter manures, such as bone-meal, soot and decayed vegetable matter. I am much in favour of crushed bones being placed at the bottom of the trench, as these are very lasting in their manurial

qualities and are very mild. After the Roses are planted they may be fed by surface dressings, which gives better results than planting in a rich compost. The top spit of soil may with advantage be turned over again after a few weeks, but take care to make the soil fairly firm again before planting.

In the case of Roses under glass very little work is needed beyond making preparations for the earliest batch of plants from the open. Roses may be unfasted from back walls, the brick-work or boards whitewashed, and the house cleansed in view of the re-housing of the pot plants. If needed, a colour wash may be used instead of whitewash. *Practice.*

TEA ROSE MISS ALICE DE ROTHSCHILD.

This variety is one of the best of the recently-introduced Roses. It has been described as a dwarf *Maréchal Neil*, which, I think, is fairly correct in some points. There is not a hardy Tea variety in cultivation that resembles *Maréchal Niel* so much as does the variety in question, especially in the perfume of the flowers.

Miss Alice de Rothschild is a fairly strong grower, and a profuse and continuous bloomer; the flowers are large, full, with pointed centres, and borne on straight, upright stems. The colour is rich, deep citron-yellow. During the present season I have seen this variety doing remarkably well in one of the coldest spots in Scotland. Miss Alice de Rothschild, when more widely known, will, no doubt, be cultivated extensively. *Charles Parker.*

THE BEST YELLOW ROSE.

On page 92 Mr. G. M. Taylor refers to a Rose near to *Rosa pimpinellifolia lutea*, but with flowers of a deeper yellow. Perhaps he means *R. altaica*? I quite agree with him that *R. Ecne* is quite different to *R. xanthina*. But, in my opinion, the best, or at least the most extraordinary of all the yellow Roses is *Rosa berberifolia*, a species with one leaflet only; the flowers are small, but each petal has, at its base, dark brown spots which contrast with the beautiful yellow colour. The plant is a curious shrub, quite distinct from every other Rose, and not very difficult to grow. It requires a sunny, dry position. *H. Corriem.*

THE GARDENS AT BISLEY.

STRANGE as it may seem, there is a close relationship between soldiering and gardening—the extreme arts, martial and peaceful. Soldiers have always been gardeners, and many of the Persian kings employed their small amount of leisure between campaigns in forming gardens, or paradises as they often styled them. Cyrus, the younger, boasted to Lyander, the Spartan general, when the latter admired the garden at Sardis, that he was responsible for the conception of that beautiful garden, and that he had planted with his own hands many of the trees there. The same soldier-emperor had another extensive garden at the ancient royal city of Celenae, where he also possessed a number of wild beasts.

Cimon, the victorious Athenian commander, planted the public garden of Athens, transforming a barren wilderness into a beautiful resort. He introduced streams of water, formed many shady groves, and planted a number of trees, especially the Olive, Plane, and Elm, so much admired by the ancients.

It is also on record that the Roman general, Lucullus, famous for his great wealth and luxurious mode of living, who introduced the Peach, Cherry, and Apricot from the East, made magnificent gardens in the Bay of Naples. Nearly every Englishman is by nature a gardener, and our own soldiers, when at foreign stations, frequently struggle against adverse circumstances in their endeavours to form gardens.

In the Indian cantonments a garden of some sort, even though it only consists of standard Crotons growing in tubs, is looked upon as a necessity. Besides being gardeners, many soldiers are expert botanists, and Kew owes much to them for their researches when on foreign service.

When we remember all this it is not surprising to find that gardens abound at Bisley. It is not, as many people suppose, merely a temporary canvas town. The social side of Bisley is great, the various affiliated rifle associations have their permanent club-houses, and a number of members of the National Rifle Association have built bungalows. Twenty years ago the site of Bisley Camp was occupied by farms. When the Council of the Association bought the freehold and planned their buildings they wisely considered the comparatively few trees which were growing there. A big dividing hedge had some fine Hollies growing in it, so the ground between the trees was levelled and the Hollies were left on mounds. Since then these trees have grown and now they diffuse a restful greenness as well as afford a grateful shade. Avenues and single rows of such trees as the broad-leaved Elm, Poplars, and the Spanish Chestnut have been planted by the sides of the chief thoroughfares and, considering the poorness of the soil, these trees have made surprising growth.

In the hollows, much of the natural vegetation remains, the Heathers have just commenced to bloom, in association with Furze and Bracken.

The largest, and probably the best garden, that of the Council club-house, boasts a well-kept, sloping lawn, with clumps of trees and shrubs, chiefly with restful green foliage, brightened here and there with Golden Yews, the purple-leaved Maple, and other striking trees. The supports of the large verandah are covered with ornamental Vines, *Jessamine* in full flower, and Ivy-leaved *Pelargoniums*. An endeavour has been made to grow the *Crimson Rambler Rose* but, except where fresh soil was imported, the attempt has not been very successful. In such a sandy soil—frequently nothing but sand and stones—*Hiawatha* would thrive much better; it is astonishing how any Rose of the *Wichuraiana* type will grow in even pure sand. Freshly-painted tubs containing flowering plants, such as *Pelargoniums*, Sweet Peas, and *Hydrangeas*, are placed at intervals along the gravel walk, and these plants add much to the beauty of the scene.

Shrubby Conifers, including *Retinospora pisifera*, and *Cupressus Lawsoniana*, grow very freely in this poor, sandy soil, and the foliage assumes a rich, green colour.

Another garden has a judicious mixture of Japanese Maples, *Marguerites*, and various *Pelargoniums* flowering freely and well, relieved by the cool green of *Yuccas* and *Lastreas*. This year Capt. J. F. Davies has commenced quite an ambitious garden with flower-beds and borders, and a well-made Larch pergola, which is already becoming furnished with cluster Roses. *Petunias*, *Fuchsias*, and *Nemesia*, provide masses of bloom. There is also a long row of Sweet Peas.

The Army Rifle Association has a spacious club-house which makes a cool and shady retreat. Numbers of well-flowered baskets, containing *Petunias*, *Pelargoniums*, *Lobelias*, and *Fuchsias*, hang from the verandah. Many other club-houses are adorned in similar manner; some have standard H.P. Roses planted in their gardens, but as a rule these are only a partial success. Teas and Hybrid Teas would be more suitable. Hanging baskets of plants, which are well attended to and are flowering freely, enter largely into the schemes of decoration at Bisley. Many of the tents at the Members' Camp have groups of summer bedding plants at their entrances, and similar groups, fresh and bright, are also frequent alongside the trade marquees in the Bazaar. *A. C. Bartlett.*

THROUGH LITTLE NAMAQUALAND WITH THE VASCULUM AND THE CAMERA.*

(Continued from p. 62.)

THE centre of the Khamiesberg lies a few miles to the south-east of the Sneeuwkop. As we approach the heart of the range, we ascend a natural staircase, of which the top of each step is a plateau of considerable size. The greater part of the range is a native reserve, and where the surface is reasonably level a good deal of Corn is cultivated. The condition of the crops suggests that the land is suffering from exhaustion, much of it, no doubt, to so great an extent that its reclamation is no longer practicable. The old Wesleyan Mission station, known as Leliefontein is situated on the most elevated of these plateaux, at 5,000 feet. In its immediate neighbourhood are hills rising at least to 5,500 feet. The natural vegetation above 4,000 feet proclaims its affinity with that of the Cape. The most notable species at 5,000 feet and upwards is a tall-spreading bush, described from Drege's specimens as *Leucodendron cartilagineum*, since transferred to the genus *Leucospermum*. It is not a strikingly handsome plant, but its greyish-green foliage and somewhat stiff deportment at once distinguish it from the surrounding vegetation, and suggest a relationship with the *Protea* family. It is no doubt identical with a bush whose charred skeleton was found on the upper slopes of the Sneeuwkop, and, indeed, it appears to be the only member of its family in the Khamiesberg. Associated with it are a *Chironia* (*Gentianaceae*), with bright pink flowers, *Erica Plukenetii*, and another Heath, with charming little white bells, of which a purple-flowered variety was previously seen on the middle slopes of Sneeuwkop. The view in fig. 57 was taken from a hillside north of Leliefontein. In the centre of the picture is the greater part of the mission station, and beyond it, on the right, the great mass of Ezelskop, the summit of which is about 5,500 ft. above the sea. It is not certain that Drege visited Leliefontein, though the nature of the country and the fact that the mission station was established in 1816 make it probable that he did. However this may be, he records that, on November 7 and 8, 1830, he

laceum, *Oxalis arcuata*, *Phylla*, *Elytropappus Rhinocerotis*, *Wahlenbergia Meyeri*, *Erica Plukenetii*, *Leucadendron cartilagineum*, *Passerina rigida*, *Struthiola virgata*, *Disa draconis*, *Moraea*, *Ixia*, *Hypoxis aquatica*, and others which are

The problems of plant distribution in south-west Africa are of particular interest and, perhaps, exceptional difficulty. We find a flora of strongly-marked Cape affinity on the Khamiesberg, a range separated from the mountains of

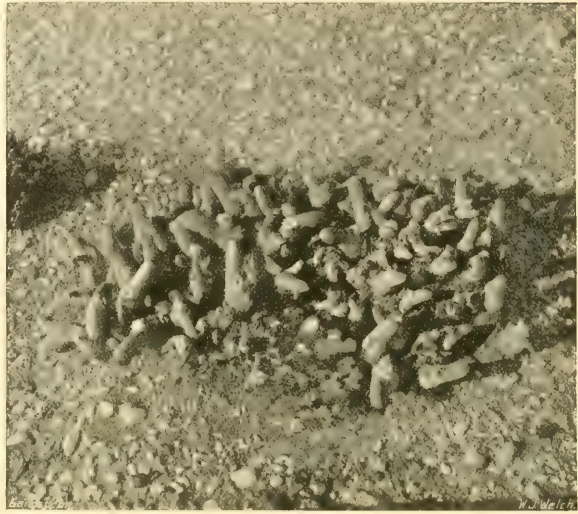


FIG. 55.—NAMAQUALAND.

Mesembryanthemum digitiforme in the Karree Desert, north of Van Rhyni Dorp.

unknown in the arid plains of lower Namaqualand.

Leliefontein is reached after a series of laborious ascents; the return to the low country is not without a little danger. But, after weeks spent in toiling across the hot, waterless plains and rough hills of Namaqualand, the glorious climate and abundant water of the Leliefontein plateau are a more than sufficient recompense for the difficulties passed and to come. Prominent

the Cape region by a formidable stretch of desert. A thousand miles away to the north, *Proteas* and other Cape genera reappear on the Huilla plateau, in South Angola, at 6,000 feet. A Restio and other Cape plants occur on the summits of the lower hills of Namaqualand between the Khamiesberg and the Orange River. The greater heights of German South-west Africa, as yet botanically unknown, or only partially explored—the Awas Range (7,000 feet), the higher peaks of the Komab Plateau (8,000 feet), *Ombotoza* (7,000 feet), *Omatako* (8,800 feet), the Great Karas Berg (6,000 feet)—these may be expected to furnish links between the patches of Cape vegetation on the Khamiesberg and the Huilla Plateau. But, however numerous the links, they will not form a chain. We shall still have a number of "islands" bearing vegetation of southern affinity, separated by a sea of arid plains, and hill-ranges with plants of an entirely different type. Are these islands of Cape vegetation the remnants of a flora once continuous, which, under stress of a changing climate and the invasion of forms better adapted to live under more vigorous conditions, has been exterminated, except on the upper slopes of the higher mountain ranges? If so, whence and by what route came the invaders whose descendants now inhabit the lower levels of the coast-belt between the mouth of the Oliphant's River and Benguela—a collection of plants whose peculiarities of form, structure and manner of life are hardly to be matched in any other existing flora? These and similar problems may, perhaps, be solved in the future, when our present knowledge of the botany of this great region has been vastly increased. To-day, although of the highest interest, they are little more than subjects for speculation.

In the low country from which the mass of the Khamiesberg rises, excluding the sandy plains of Bushmanland, our attention is at once claimed by the succulents. Whether they flourish to the practical exclusion of all other types of vegetation, or are mingled with low bushes, of which neither the stems nor the leaves are conspicuously fleshy, there is no doubt that,



FIG. 57.—NAMAQUALAND.

View over Leliefontein Mission Station, looking south. Ezelskop in the distance to the right. The vegetation in the foreground includes a large proportion of *Rhus* Bush (*Elytropappus Rhinocerotis*).

made observations "at the foot of the Mountain Ezelskop, looking towards Leliefontein." Here his collections included *Pelargonium stipu-*

among the impressions left by a visit to the Khamiesberg are pleasant memories of the kindly welcome and generous assistance which a somewhat jaded expedition received at Leliefontein from Rev. W. M. Crampton, the missionary in charge of the station.

* Being some notes on the Percy Sladen Memorial Expedition to the Orange River, 1910-11. This expedition was assisted by a grant from the Royal Society.

from one end of Namaqualand to the other, below 3,000 feet, they constitute the predominant type of vegetation. They are particularly well developed in the stretch of desert already mentioned (The Karree), which separates the Khamiesberg, on the north, from the northern spurs of the Gifberg, Matsiekamma, and Oliphant's River Mountains, on the south. Conspicuous among them are the genera *Mesembryanthemum*, *Crassula*, *Cotyledon*, *Augea*, and *Anacampseros*. Some of the *Mesembryanthemum*s possess the most peculiar forms. Not the least remarkable of these is shown in fig. 58. It is believed to be *M. digitiforme*, a species collected and described by Thunberg, but said to be absent from his own herbarium. The erect stems are very short, and bear one to three leaves, of which the uppermost and youngest resembles a very coriaceous finger. They contain much water and are very soft, so that a dried specimen can give but little idea of the natural appearance of the plant. From the broad, sheathing base there emerges the small, delicately-white flower which is visible in the illustration. A group of these plants is seen in fig. 59. They, like so many other members of the genus, are very local in distribution. They were only found in a few small patches in this stretch of desert, where, apparently, Thunberg's specimens also were obtained. Of two other *Mesembryanthemum*s shown in fig. 60, the one with the stiff, erect leaves has a wide range. It is a very common plant in Western Bushmanland: in Namaqualand it extends almost as far north as the Orange River, and, no doubt, occurs again beyond it. Some of its large, dry fruits may be seen in the illustration. These are tightly closed so long as the air is dry, but they quickly open when wetted by the rain—a behaviour well known to be characteristic of the capsules in this genus. A second species may be seen a little below and to the right of the centre, in fig. 60. Its resemblance to the stones among which it grows is so close that the plant is easily overlooked. It is now in a quiescent state; two young, green and fleshy leaves lie concealed in the shrivelled bases of those of the previous season; these, together,

a later contribution. Even the most cursory account of the succulents of this region must not omit to notice that curious plant *Augea capensis* (*Zygophyllaceæ*) (see fig. 61), which, despite its wide area of distribution, has been very little



FIG. 60.—NAMAQUALAND.
Two striking species of *Mesembryanthemum* in the Karree Desert.

studied. It occurs in sandy and often saline soil in the Karoo, the plains of Western Bushmanland, and Namaqualand, and northwards into the tropics. Its stout, glaucous leaves contain a great deal of water, which is intensely saline to the taste. Its flowers are white and not remarkably conspicuous; its very numerous fruits are curiously like the leaves. In the young condition, they are very succulent, but, when ripe, they



FIG. 59.—NAMAQUALAND.

A group of *Mesembryanthemum digitiforme*, including the plant shown in fig. 58. The low bush in the background includes *Euphorbia*s, *Mesembryanthemum*s, *Compositæ* (especially *Pteronia*), and *Zygophyllum*.

form the little balls which stand one at the end of each short stem. Perhaps the most striking of the *Mesembryanthemum*s met with—*M. Barkleyi*—occurs near the northern edge of this desert, but it is found in much greater profusion farther north, and it will be more suitably described in

break up into 10 dry parts, each containing a single seed. Each segment resembles a seed with a double wing. The manner in which this wing is formed is peculiar, and will be described later.
H. H. W. P.

(To be continued.)

NOTICES OF BOOKS.

RURAL LIFE AND SCENES.*

We can appreciate the bewilderment and displeasure of the old farmer who, having seen Ruskin's *Notes on the Construction of Sheep-folds* on a bookstall, purchased it with a view to improving his mind on a subject dear to his heart. A somewhat similar surprise awaits those who acquire Mr. Hurst's book, and would learn much about *Quercus pedunculata* and *Q. sessiliflora*. But there the likeness ends. The reviewer will confess to having read this work at a single sitting with the deepest enjoyment. It is really the story of an enthusiast for the British Oak who, on a spring day a few seasons ago, set out with some hundreds of Acorns in a box and carefully planted them as he perambulated the country in the spots where they would be most likely to thrive. The journey commenced near Manchester, and after trudging leisurely into the Peak district of Derbyshire, and spending much time on the banks of the Trent, Mr. Hurst found his way through Leicestershire and Rutland to Stamford, whence he returned home. He seems to have spent some three months on the journey, shunning towns and staying at farms, cottages, and country inns. To those who know and love the country the story of his adventures will make a strong appeal, for it is written with insight and humour. In the early stages of his pilgrimage he encountered and adopted a marvellous mongrel dog with the oppressively affectionate disposition common to its kind. The two wandered on



FIG. 61.—NAMAQUALAND.

Augea capensis growing in the Karree Desert. The plant is 2 feet high; this size is rarely exceeded.

with an increasing love and mutual understanding until a motor-car put an end to the career of the author's companion. It was the grief engendered by this tragedy that brought to a sudden end a journey which was intended to embrace the south and west of England.

It would be unfair to leave it to be concluded that the book justifies its title no more than is suggested by what has been written above. It does, indeed, contain 14 full-page illustrations of famous or remarkable Oaks with descriptions of them and their traditions. And, scattered here and there through its pages, are a few facts or theories concerning Oak timber, its age, uses, &c. But it is not for them one reads the book. It is for the picture it gives of English country scenes in spring and summer, its humorous appreciation of rural character, and for the occasional deeper note it reaches in the contemplation of nature's eternal mysteries.

* *The Book of the English Oak*, by Charles Hurst. (London: Lynwood & Co.) 5s. net.

THE FLOWERS OF CHAUCER.

(Continued from page 107.)

OAK.

1. With the leste strook
It seemeth as it wolde felle an oak.
Knights Tale, I. 153.
2. A corone of a grene ok cerial
Upon hir heed was set ful fair and mete.
Ib. 163.
3. And leet comaunde anon to hakke and
hewe
The okes old.
Ib. 180.
4. Oak, fyr, birch, asp.
Ib. 182.
5. Lo the oak, that hath so long norisschyng
Fro tyme that it gymmeth first to spring,
And hath so long a lyf, as we may see.
Ib. 185.
6. Thurghout his armor it wol kerve and byte,
Were it as thikke as a branched oak.
Squyeres Tale, II. 207.
7. See ye that oak?
Pardoneres Tale, III. 84.
8. The bilder oke.
Assembly of Foules, IV. 195.
9. And by him selfe, under an oke I gesse.
Ib. 197.
10. In which were okes grete, streight as a line.
Flower and the Leaf, IV. 238.
11. A company that ware, for their delite,
Chapelets freshe of okes serialle.
Ib. 244.
12. As an oke comyth of a littil spire.
Troilus and Cryseyde, V. 102.
13. The sturdy oke
On whiche men hakkyn oft.
Ib. 104.
14. Had turned his bak
To an oke, an huge tree.
Boke of the Duchesse, VI. 151.
15. Maples, asche, oke.
Romaunt of the Rose, VII. 59.
16. For no man at the firste stroke
Ne may not felle down an oke.
Romaunt of the Rose, VII. 127.
17. Asche, firre, and oke, with many a yonge
acorne.
Complaynte of a Lovers Lyfe, VIII. 8.

Among the mediæval writers, the Oak was the symbol of strength, endurance, and long life. In Nos. 2 and 11 "Cerial" and "Serialle" are supposed to refer to the Turkey Oak (*Q. cerris*), and in No. 8, "the bilder oak" refers to its use in building. Spenser uses the same descriptive epithet.

OATS.

He schal have multiplying of his grayn,
Whan he hath sown, be it whete or otes.
Prologe of the Pardonere, III. 70.

OLIVE.

1. Thy brent alle the cornes of that lond,
And alle her olyvers and vynes eeke.
Monkes Tale, III. 188.
2. The olive of peace.
Assembly of Foules, IV. 197.
3. With cipres, and with olyvers,
Of which that nygh no plente here is.
Romaunt of the Rose, VII. 59.
4. Pyn trees, cedres, and oliveris.
Ib. 57.

Chaucer must have seen the Olive in Italy; but No. 3 shows that it was a rare tree to him, though it was introduced into England perhaps before his time. But it was well known to English writers, probably from the frequent mention of it in the Bible.

ONION.

Wel loved he garleek, oynouns, and ek
leekes.
The Prologe, I. 103.

PALM.

1. Bothe with the palme of martidorm
Ye schullen come unto his blisful feste.
Secound Nonnes Tale, III. 14.
2. The palme of martidorm for to receyve.
Ib. 15.

3. The victor palme.

Assembly of Foules, IV. 195.

In heathen writers the Palm is the emblem of victory. Christian writers adopted it, but transferred the victory to martyrdom.

PARSLEY.

For thy persly they faren yet the wors,
That they have eten with the stubbil goos.
Cokes Prologue, I. 235.

PEACH.

Many homly trees ther were,
That peches, coynes, and apples beere.
Romaunt of the Rose, VII. 59.

As Chaucer classes the Peach with Chestnuts and Apples among homely trees, it seems as if he was acquainted with it; but it is very doubtful if the tree was in England in his time, and his is the first mention of it in English literature.

PEAR.

1. And thus I lete him sitte in the pirie.
Marchaundes Tale, II. 192.
2. I most han of the peres that I see,
Or I moot dye, so sore longith me
To eten of the smale peris greene.

Wolde ye vouchesauf, for Goddes sake,
The piry inwith your armes for to take.
Ib. 196.

3. Medlers, plowmes, perys, chesteyns.
Romaunt of the Rose, VII. 59.

PEAS.

He poureth pesen upon the haches slidre.
Legende of Good Woman, VIII. 65.

A plan of the sailors to make the decks slippery by scattering Peas on them.

PELLITORY.

His forhed dropped as a stillatorie
Were ful of plantayn and of peritorie.
Prologe of the Chanounes Yeman, III. 25.

The name was given to many plants of supposed medical virtue, especially for toothache. The Pellitory of Spain was of high repute, but the name was often applied to our wall Pellitory (*Parietaria*), common on old walls.

PERIWINKLE.

1. Ne violete, ne eke pervinke.
Romaunt of the Rose, VII. 43.
2. There sprang the violete alle newe,
And fresshe pervinke riche of hewe.
Romaunt of the Rose, VII. 60.

Pervink, a word of uncertain derivation, was from very early times the name of the pretty plant which, in the 16th century, gradually developed into its present name of Periwinkle.

PINE.

1. Of Pluto and of Proserpyne,
That quene ys of the derke pyne.
House of Fame, I. 247.
 2. On pyn trees, cedres, and oliveris.
Romaunt of the Rose, VII. 57.
 3. With many high lorey and pyn.
Ib. 59.
- See also "Fir."

In Chaucer's time, Fir and Pine were synonymous, and the only Conifer known was the Scotch Fir. How far that extended into southern England is uncertain, but it was probably scarce. Turner, in 1518, said of it: "Pynes growe fayrest in gardynes. There groweth one fayre one in Richmund."

PLANE.

1. Wilw, elm, plane.
Knights Tale, I. 182.
2. Maples, asche, oke, aspe, planes longe.
Romaunt of the Rose, VII. 59.

The Plane tree, now so common, is from

Eastern Europe, and was not introduced into England till after Chaucer's time.

PLANTAIN.

His forhed dropped as a stillatorie
Were ful of plantayn and of peritorie.
Prologe of the Chanounes Yeman, III. 25.

Plantain has many old English names, but Chaucer is the first to use the name derived from the Latin *plantago*. It had a high reputation as a styptic.

PLUMS.

Medlers, plowmes, perys.
Romaunt of the Rose, VII. 59.

POMEGRANATE.

There were, and that wote I fulle welle,
Of pomgranetys a fulle gret delle;
That is a fruyt fulle welle to lyke,
Namely to folk whanne they ben sike.
Romaunt of the Rose, VII. 58.

A beautiful southern tree, found in Early English literature, from the mention of it in the Bible, and perhaps grown in England in Chaucer's day. Turner says that there were "certyn in my Lordes gardine at Syon," in 1548. It has made its mark on the English army in the hand grenades, and in the representation of the fruit on the collars of the Grenadiers.

POPLAR.

1. Aldir, holm, popler.
Knights Tale, I. 182.
2. Fyne ew, popler, and lyndes faire.
Romaunt of the Rose, VII. 59.

Both name and tree are foreign. The name is from *populus*.

PRIMROSE.

1. Sche was a primerole, a piggesneyghe.
Milleres Tale, I. 195.
2. The floures bright,
The primerose, the violete, and the gold.
Court of Love, IV. 183.

It is doubtful whether the Primerole of Chaucer was our Primrose or Cowslip.

QUINCE.

Peches, coynes, and apples.
Romaunt of the Rose, VII. 59.

Coynes and Quince are variants of the same word, both early traced from the Latin *cydonia*. The Quince was brought into English gardens early, and was much prized, both for its beauty and wholesomeness. *H. N. Ellacombe, Bitton Vicarage, Bristol.*
(To be continued.)

PLANT NOTES.

LAVATERA OLBIA.

LAVATERA OLBIA is one of the most ornamental and satisfactory of Malvaceous plants for garden culture, always attracting attention when in flower and growing with great facility. It forms a small, quick-growing shrub of from 5 to 10 feet high and of several, but not usually of many years duration. It grows readily from self-sown seed. In the Cambridge Botanic Garden it grows at the margin of a copse, which it envelops with its bright pink flowers, but it is in the open perhaps that it flowers most profusely. The flowers of individual plants vary both in the size and brilliancy of colour, so that it is well worth practising selection with a view to improvement. Individually in form and dimension the blossoms are not unlike those of *Hibiscus syriacus*. The plant has an attractive habit and good foliage, and even when not in flower is ornamental. It is an excellent subject for the wild garden. The species is a native of the South of Europe, and has been grown in the Botanic Garden, Cambridge, for many years. *R. Irwin Lynch.*

KEW NOTES.

THE ROCK GARDEN AND HERBACEOUS BORDER IN MID-JULY.

THE middle of July is late for visiting the rock garden, which is at its brightest appearance during May and June, but some plants, which were not without their attractions, were still in flower there at this date. A rather large number of Campanulas were in bloom, including the little blue *C. pulla*, the purple *C. Stansfieldii*, a large colony of *C. longistyla*, with purple flowers borne on stems from 2 feet to 3 feet in height, *C. Raineri*, *C. phycitocalyx*, *C. G. F. Wilson*, a deep purple variety, *C. carpatica turbinata*, *C. carpatica venusta*, the rare *C. punctata*, with long, white flowers spotted with purple in the interior, and *C. sibirica*, the last-named forming little bushes of purple flowers. The white *Gazania pygmaea* and the yellow *Gazania pygmaea lutea* were pretty, whilst *Pentstemon Jamesii*, with heads of lavender-blue flowers with white throats, about 6 inches high, was also attractive. *Brodiaea congesta*, with clusters of white flowers on stems nearly 3 feet high, was pleasing, as was *B. hyacinthina*, with heads of rather small, white blossoms. *Gentiana Freyniana*, the deep blue flowers about 1 inch across, four in a cluster, carried on stems a foot high, is a rare species, and *G. altaica*, with small, pale blue flowers borne in a many-blossomed cluster, an uncommon one. A very fine plant observed in a damp spot was *Rodgersia pinnata*, the flower-heads of small, pinkish-white blossoms over a foot in length being borne on stems nearly 6 feet in height. The leaves are divided into five corrugated leaflets, which are green edged with red. A pretty and interesting little plant was observed in *Grammanthes gentianoides*, with brilliant orange, starry flowers less than 6 inches in height. This is stated to be a half-hardy annual. *Malvastrum campanulatum* was somewhat straggling in habit, but its small, bluish-pink flowers with white centres were very pretty. *Sedum sempervivum*, with heads of crimson flowers borne on stems 5 inches in height, made a bright patch of colour. The yellow *Linum flavum* was very bright, and the white *L. arboreum* was also in flower. Among the Pinks, *Dianthus deltoides* was still in bloom, as was the very popular and beautiful *Phlox divaricata Laphamii*. In the neighbouring walled garden *Oenothera tenuifolia*, about 18 inches high, was bearing a profusion of white flowers, each about 1 inch across, and was a mass of bloom. It is a most valuable garden plant. The herbaceous border was very bright. One of the most charming plants observed was *Salvia nemorosa*, with crowded spikes of small, purple flowers borne in prodigal abundance. It is a most attractive border plant. A great bush of *Galega Hartlandii*, with pink and white flowers, was handsome, as was *Clarkia*. Brilliant, which was a splendid show of rose-pink. A colony of *Delphiniums* was a little past its best, but the Hollyhocks, crimson, pink, and white, were in full flower and showed no sign of disease. Three handsome yellow flowers were *Helenium autumnale magnificum*, *Achillea filipendula*, and *Senecio Doria*. *Lavatera cashmeriana* has pretty pink blossoms. The border was filled with *Carnations*, *Antirrhinums*, *Begonias*, *Stocks*, *Nasturtiums*, *Gazanias*, *Pentstemons*, *Nemesias*, *Cupheas*, *Potentillas*, *Oenotheras*, *Calceolarias*, and *Alonsoa Warscewiczii*, and these presented a showy and attractive appearance. In a narrow border in front of a greenhouse was a very healthy colony of *Gerbera Jamesonii*, with considerably over 100 expanded blossoms, and in the same border were *Crimum Powellii* and *C. P. album*. I observed a very handsome *Lily* in *L. sutchuenense*, the brilliant orange flowers being spotted in the interiors with small blackish-purple dots. *Wynndham Fitchbert*.

FOREIGN CORRESPONDENCE.

THE GERMINATION OF JUNIPER SEEDS.

I CONTRIBUTED to *Gardeners' Chronicle*, July 7, 1906, and March 2, 1907, notes on the rare Conifer, *Juniperus Cedrus*, and the difficult germination of its seeds. I have since paid much attention to the subject, but, so far, I cannot say, after mature experience, that the method recommended by me then, of immersing the extracted seed in plain water for a week or a fortnight, at a temperature of about 65° or 70°, is infallible. All that I can say is that some seeds germinate much better after this immersion than untreated seeds.

Remembering my experiences with the Tagasaste seed (*Cytisus proliferus* var. *palmeris*), particulars of which were published in the *Revue Horticole d'Algérie* in 1898, I tried, two or three years ago, boiling the berries of another Juniper (*Juniperus bermudiana*), of which I have much more seed at my disposal than of the almost extinct *Juniperus cedrus*. I began by

merion of 3, 6 and 10 seconds into boiling water (placing the seed in a small muslin bag, dipping it into the boiling water, and, at the end of the specified time, quickly plunging it into water at 65° to cool, and then sowing it) ensure early germination. The control experiments, with camphor water, with peroxide of hydrogen of different strengths, and soaking in plain water, though apparently helping, have shown themselves far inferior to the immersion in boiling water for a few seconds above described. I have remarked that after 10 seconds boiling not so many seeds germinate as after 3 and after 6 seconds. In the experiments published in the American thesis above referred to, the seed was placed in a tin, boiling water was poured over them, and they were left to soak in the hot water; but this method, no doubt, destroyed the embryos. This was also my experience when I boiled the berries for 20 seconds and upwards.

It may not be out of place here to record that, with Tagasaste seed, I was able, in 1897, to reach the incredible limit of one hour's boiling without destroying all the seeds, and Sir Daniel Morris, who was then at Kew Gardens, wrote to me stating that my experiments had been confirmed, and that even two hours boiling had failed to destroy all the embryos of this extraordinarily resistant seed. Tagasaste had made me careless when I began my experiments with Juniper seed, and, unfortunately, the shortest period of boiling which I employed then was 20 seconds; but now that I have been duly cautious, I think I have succeeded in finding a method which may be of great service to foresters and others interested in the quick germination of Juniper seeds, which, as is well known, lie dormant in the ground for one or more years. It is reported that there is a nurseryman in America who has had for some years a secret and successful method of treating the seeds of *Juniperus virginiana* (the Red Cedar). Perhaps now we shall hear if his secret is any better than my very simple method. *George V. Perez, Puerto Orotava, Tenerife*.



(Photograph by E. L. Lynch.)
FIG. 62. SYMPHYTUM PEREGRINUM.
FLOWERS BLUE.

SYMPHYTUM PEREGRINUM.

AMONGST hardy herbaceous plants cultivated in the Cambridge Botanic Garden there is nothing more certain of attracting attention in spring than *Symphytum peregrinum* (see fig. 62). It is a handsome plant for bed and border, but, or many years it has proved a great attraction in the shrubberies to visitors, who never fail to inquire its name. For a number of years there was a difficulty in answering the question, but the name has been recently settled at Kew as *S. asperinum*. It is not, however, the plant usually grown under the name, but no doubt from the aggregate-species point of view it is perfectly correct. It differs from *S. asperinum* as figured in the *Botanical Magazine*, tab. 929, apparently in having more slender flowers, but especially in having much narrower sepals. It agrees very nearly, however, with the plant figured in the same work under the name *S. peregrinum* (tab. 6466), which is the *S. asperinum* of Babington, said to have been found wild in England, and for garden purposes this name may, I think, be retained. The *Index Kewensis*, it should be mentioned, refers this figure to *S. asperinum*, but the two figures represent distinct plants. They are very closely allied, however, and equally good no doubt for economic uses. *Symphytum peregrinum* has a strong habit, grows about 3½ ft. high, and when once established in a thicket is certain to continue for many years. It is an exceedingly good subject for the wild garden; the foliage is bold and striking, while the flowers are of a beautiful cerulea blue, being preceded by red-coloured buds. *R. Irwin Lynch*.

boiling them for 20 seconds and upwards; the results were negative. Only one of the seeds germinated, but the untreated berries sprouted in due course. None of the berries boiled for over 20 seconds sprouted.

The authorities of the Forestry Department, U.S.A., kindly lent me, a few days ago, a thesis presented at the Yale School of Forestry, in which, amongst other so-called difficult seeds, experiments had been made with germinating those of the Red Cedar (*Juniperus virginiana*), and all the different means tried had failed, including boiling water.

The knowledge of these failures encourages me to publish the results of my last experiments made with seed of *Juniperus bermudiana* gathered in the fall of 1909. I weighed lots of about 1 ounce each (30 grammes), and then carefully extracted the small seeds contained in the dry berries, which represent, roughly, about one-third of the weight, and, on May 1 of this year, I began my experiments, which have already proved successful, and show that the short im-

The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

ODONTOGLOSSUM.—Plants of the dwarf habited members of this genus, such as O. Rossi, O. Cervantesii, O. Oerstedii, and their hybrids, O. Ferventianum, O. aspersum, and O. Theodora, have their growths sufficiently advanced to allow of any repotting or surfacing being done. The plants grow best when suspended from the roof-railers in well-drained, shallow pans. In common with all newly-potted plants, they are best stood on the stage till established, as the rooting material does not then dry up so quickly as when the pans are suspended. Occasional waterings will suffice to keep the plants sufficiently moist. Any excess of moisture at the roots must be strictly prevented, and especially in the case of O. Oerstedii, which is soon injured by too much water.

ODONTOGLOSSUM URO-SKINNERI.—This distinct species and its beautiful hybrids O. Eleanor, O. Groganiana, and O. Goodsonii are all vigorous-growing plants, easy of cultivation. The roots of these are of a more fleshy character than those of most *Odontoglossums*, and this fact must be remembered when repotting or otherwise disturbing the soil. For this reason pots of fairly large dimensions should be used, and they should be drained thoroughly well. A similar mixture to that advised last week for *Cochlidiums* will meet the requirements of these plants, but it should be employed in a coarse state. Few Orchids require more water when in active growth than this *Odontoglossum*, hence the reason for care in the *Odontoglossum*, while the growths are young, overhead waterings should not be afforded, but when the foliage commences to harden, light sprinklings are very beneficial, and assist in keeping down insect pests.

SOBRALIA.—The genus *Sobralia* contains many beautiful species and hybrids, including *S. macrantha* and its variety *Kienastiana*, *S. xantholeuca*, *S. Sanderiana*, *S. Veitchii*, *S. Amesiae*, *S. Holfordii*, and *S. leucoxantha*. The blossoms are very attractive, and although the individual flowers last a short time only, this is amply compensated for by the quick succession in which they appear, for no sooner does one flower fade than another opens, and this goes on until the stem is exhausted. *Sobralias* grow freely and are easily accommodated, for where there is not sufficient headroom for the larger growing specimens on the stage, a corner on the floor may be found for them; and, although preferring a light situation, they will make good flowering growths in shady places where other plants fail to thrive. I have always found these plants grow best in a light and well ventilated structure where a cool intermediate temperature is maintained. During the growing season the plants require copious supplies of water; an occasional application of weak liquid manure made from farmyard dung is very beneficial to root-bound specimens. Even in winter the plants are not entirely at rest, therefore the rooting materials must never be allowed to become dry. The foliage is liable to be attacked by red spider and thrips, especially in a dry atmosphere; for this reason the foliage should be freely syringed even when the plants are not in flower.

REPOTTING.—Most of the *Sobralias* having finished flowering, attention should be paid to their repotting. Being terrestrial Orchids, they should be potted like ordinary plants, and not elevated above the pot rim. So closely do the roots envelop the compost that it is difficult often to disentangle them, and unless there is a suspicion of decayed material in the centre of the mass, it is much better not to disturb them. In the case of large specimens which have become bare in their centres, or which have old and sour compost about their roots, the plants should be shaken out and divided. It is difficult to per-

form this operation without injury to the roots, but care must be taken to preserve as many as possible of the latter intact. After removing the old rooting material and washing and drying the roots, cut off cleanly all the latter that are bruised just above the point where they are injured. The divided portions should then be potted in receptacles just large enough to accommodate them. The drainage materials should be ample and arranged perfectly. The rooting material should consist of two-fifths good yellow loam, not of the stiffest nature, but light and fibrous; two-fifths turfy peat, and one-fifth leaf mould; the whole should be well mixed together with sufficient gritty material to keep it porous. Use the material in a rough state, and press it very firmly about the roots. In the case of large specimen plants, some of the old growths that have flowered should be removed, severing them close to the roots, thus allowing the young growths that are forming additional room to develop, and at the same time admitting light and air to them.

PLANTS UNDER GLASS.

By JAMES HEDLEY, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

THE CONSERVATORY.—In consequence of pressure of work in other departments of the garden, the conservatory will, in many instances, have been somewhat neglected. The training of climbing plants should first receive attention, reducing the growths as may be desirable. A thinning-out of weakly and, in some cases, sappy shoots will be of benefit to other permanent subjects. This will not only produce a tidy effect, but will be conducive to the ripening of the growths of plants that flower in the early spring and summer. In doing this, watch closely for signs of insect pests. Some years since I found at this season a few mealy bugs, after I had believed that all had been exterminated. I did not hesitate to cut out the entire plant. It was a fine specimen of *Tacsonia insignis*, one of the very best of the genus, and was flowering freely at the time. But its destruction was imperative in order to avoid a risk of the bug multiplying. Whenever it is possible, make a free use of the syringe to keep in check other pests, such as red spider and thrips. Where *Selaginella denticulata* is planted as a carpeting to specimen plants, or as edgings to borders, it is well to replant the carpet or border during this month. Even if the plants of *Selaginella* are looking healthy just now, they will, in due course, become too dense to remain in a fresh condition throughout the winter. See that no plants in borders suffer for want of water. If any of the plants are becoming worn out, it is not too late to remove them and plant a fresh stock. In doing this, see that the borders are well drained, and use the best soil available for planting. *Jasminum grandiflorum* is well worthy of a place in the conservatory, and it should be placed at the warmest end of the house. During the dull season of the year this *Jasmine* will be welcome for the fragrance of its blossoms: the plant is not a very luxuriant grower. With respect to flowering plants in the conservatory, my plan is to reduce their numbers somewhat at this season of the year, when there is an abundance of flowering plants out-of-doors. Their places may be taken by Ferns and many other foliage plants at this season. *Codiaeums* and *Dracenas* that have well filled their pots with roots may be employed until the end of September. These, with such *Liliums* as *L. longiflorum*, *L. auratum*, and the varieties of *L. speciosum*, will make a distinctly effective display. The *Tuberose* is an acceptable plant in the conservatory at this season; so also are the *Daturas*, including *D. suaveolens* (syn. *D. arborea*) and *D. Knightii*. The flowers of these yield a grateful fragrance in the evening. Conservatories have frequently to be closed at the sides, for obvious reasons, during the night, hence it is most desirable to arrange for a constant inlet of fresh air by means of the top ventilators and small apertures near to the ground. I have frequently noticed that, where conservatories are closed, or nearly so, at night, the flowers they contain remain fresh for only a short time. This is not the fault of the gardener, although it is often placed to his account. Where the interior of the conservatory needs painting, there is no more suitable time than the present to do the work.

THE GREENHOUSE.—The best results are obtained with certain greenhouse plants when they are planted out. *Daphne indica rubra* affords an illustration of this. Under pot-culture, this deliciously-scented plant is not often seen in a very thriving condition after it has been shifted into a 6-inch pot; its indifferent appearance may be due to unsuitable soil, want of care in potting, or, what is more likely, careless watering. But it will grow well in a narrow, well-drained border, and it will not matter if it be planted against a somewhat damp wall provided the drainage is in a proper order. The soil should consist mainly of good fibrous peat to which a small proportion of turfy and light fibrous loam may be added. In planting make the soil firm and, after one copious watering, be careful not to afford more moisture than is necessary. Good plants of this *Daphne* in small pots may be obtained from the nurserymen at this season of the year, and these will be very suitable for planting out. I would not hesitate to plant out a specimen that is not in the best of condition, for it might be the means of bringing about a complete recovery of health. *Myrsiphyllum asparagoides*, a well-known and useful plant for decorative purposes in a cut state, will also thrive remarkably well and give a far better return when planted out than when grown in small pots. A suitable place is the foot of a greenhouse wall 5 or 6 feet in height, where each shoot may be trained up a string, thus being easily severed when required. Use chiefly loam in the culture of this plant.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Ashton Clinton Gardens, Buckinghamshire.

GATHERING STONE FRUIT.—However trifling this subject may appear to be, it is of sufficient importance to warrant some observations, owing to the fact that it is still the practice of some to allow the fruit to remain upon the tree as long as possible, and sometimes even until it falls. This may be due to the erroneous belief that the fruit has then reached its highest degree of flavour, although, as a matter of fact, fruit loses in flavour two or three days previous to falling, and its eating qualities will deteriorate more and more the longer it is kept. The best time at which to gather the fruit is, in the majority of cases, about three days before it would have fallen from the tree, as it is then at about its highest state of perfection. The principal difficulty appears to be in knowing when the fruit is at that stage, and this can only be determined after a close observation, coupled with a lengthy practice. No stone fruit of any kind should be pinched in order to ascertain if it is sufficiently ripe for gathering, but the Peach, Nectarine, and Apricot are the sooner damaged by pinching. A simple method of ascertaining if a fruit is ready for gathering is to place the hand beneath and gently raise it; if in a proper condition its stalk will part from the branch immediately, but if it is not ripe it will still adhere to the tree.

WALL TREES.—All the leading shoots of wall trees should be nailed or otherwise secured in position as they advance in growth, and those that are not required cut out. This applies especially to trees of Peach, Nectarine, and Apricot, which appear likely to continue growing in moderately moist condition, but not too wet, as an excess of water applied at this time of the year increases the risk of late growths forming, and retards the ripening of the wood generally. Although insect pests are now practically absent, they may reappear, therefore watch closely for any signs of them.

HARDY FRUITS.—If not already done, no time should now be lost in removing all superfluous shoots of hardy fruit trees of all kinds, whether they are espalier, dwarf, pyramid, or standard trained trees. Not a single shoot that is not wanted should be retained, as there will be no danger of the buds at the base of the shoots breaking into growth after this date. Attend to the tying of the leading shoots on espalier and other trained trees. American blight is still troublesome on some Apple trees, and any that is detected should be destroyed, as recommended in a former Calendar.

FRUITS UNDER GLASS.

By E. BASKETT, Gardener to the Hon. VICARY GREEN, Adenham House, Hertfordshire.

PINEAPPLES. Suckers were taken from early summer fruiting Pines, potted, plunged, and kept shaded from the sun's rays, should be gradually inured to more exposure as growth becomes perceptible. Provided the potting material was in a suitable condition of moisture and the compost made firm, damping and syringing will serve to provide sufficient moisture, for any excess would quickly cause the soil to become sour. Remove all suckers from successional plants when these are large enough to handle. Continue to ventilate the houses freely during hot weather, as this will cause the plants to produce a sturdy growth. Avoid overcrowding of the plants, and, with a change in the weather, increase the amount of fire heat in order to maintain a temperature of about 70° to 75° at night. Damp the walls and paths well the last thing at night.

LATE VINES.—In order that the vines may be maintained in a good condition throughout the winter, the fruits should be perfectly ripe by the middle of September, sufficient fire heat should be provided to maintain a night temperature of 70° with a circulation of air. Attend to the watering of the roots, and, whilst the berries are colouring, keep the house well damped. Late houses of Muscat Grapes will need the laterals removed to prevent the foliage becoming crowded. Under the present conditions of the weather too much exposure to sunshine will cause the berries to become browned, which detracts from their appearance. At intervals the lateral growths on such varieties as Lady Downes and Black Alicante should be removed before they become too strong, but allow plenty of good foliage to remain over and above the berries to ensure the latter colouring well. Vines of Black Hamburgh which ripened their bunches late should be allowed to make a moderate extension of the laterals, especially those that carried heavy crops of fruit. The bunches in all vineries will keep better, especially in the event of wet weather and a fall in the temperature, if a slight circulation of warmth is permitted in the hot-water pipes at night.

CHERRIES.—Cherry trees in houses require the coolest conditions that it is possible to give them after the fruit is picked. Where a house is set apart for their culture the roof lights may be removed. Unless the borders are well drained, afford water at this season very sparingly, or the trees will be excited into producing new growths. Damp the bare spaces freely on hot days and syringe the foliage as often as is considered necessary.

THE KITCHEN GARDEN.

By JOHN DOWS, Kitchen Garden Foreman, Royal Gardens, Windsor.

CARROTS. If, owing to the dry season, the stock of Carrots has become short, no time should be lost in sowing, in a pit, some early, stump-rooted variety to be available for use in November. In several years past we have sown Carrots at Frogmore during the month of August to furnish a supply of young roots in November. If a cold pit is employed place the bed to within 18 inches of the glass, and cover it with 6 inches of light, rich soil, made moderately firm. Sow the seeds thinly, cover them with a ½-inch layer of finely-sifted soil, and afford a gentle watering. If the weather continues bright, a slight shading should be given during the warmest part of the day to prevent the soil becoming dry.

TURNIPS. Another sowing of Turnips may be made now and the crop allowed to remain in the ground during the winter. The plants will probably furnish roots and Turnip greens next spring. Turnips sown a month ago should be given frequent waterings of clear water in the evenings, and the soil between the rows stirred with the Dutch hoe. If the Turnip fly is troublesome, do the foliage well with wood ashes either after each watering, or in the early morning whilst the foliage is damp with dew.

BATAVIAN ENDIVE. A batch of Batavian Endive should be planted now for supplying leaves during October and November. Any part of the garden will be suitable for this

plantation, but the latest batch for outside cultivation should be planted on a well raised border facing south, where some protection may be afforded during times of frost or heavy rains. A sowing of this vegetable may be made at the present time to provide plants for growing in cold frames, into which they should be transplanted as soon as they are large enough to handle. If this system is adopted the plants will become established before the autumn is far advanced. The lights should be left off until the approach of frost, when they should be placed over the plants at night time, but removed again during the early part of the day. As soon as the earliest plants have attained to their full size, some of them, when perfectly dry and cool, may have the leaves tied together, so that they may become blanched as soon as possible.

CORN SALAD.—A sowing of this useful salad plant may now be made to furnish plants for use during the autumn. Sow the seeds thinly in shallow drills and give liberal supplies of water to ensure a quick growth. When the plants are large enough they may be thinned to 6 inches apart. Hoe the ground frequently and never allow the plants to suffer from want of water.

CHICORY.—The latest batch of Chicory should be ready for thinning, which should be done as soon as the plants are large enough for the operation. Allow a distance of 6 inches between the plants, so that they may make fine specimens.

THE FLOWER GARDEN.

By E. J. BENTON, ST. N. Gardener to the Earl of Devonshire, K. L., Tynningham, East Lothian.

BULB PLANTING.—The present is a suitable time for the planting of the majority of early-flowering bulbs, including Muscari (Grape Hyacinths), Crocuses, Fritillarias (Crown Imperials), and Narcissi, Tulips, Dutch Hyacinths, and English and Spanish Irises should not be planted until late in the autumn. The beautiful autumn-flowering *Crocus speciosus* should be planted without delay, and should further variety be desired, *C. zonatus* (lavender), and *C. longifolius* (purple-violet) may be selected. Nor should any time be lost in the planting of *Colchicum autumnale*, *C. speciosum*, and its variety album and *C. Bornmulleri*. Autumn-flowering Cyclamens are either flowering or about to flower, and the ground about the tubers should be cleansed of weeds and a very light covering of sifted leaf-soil or peat laid neatly in the spaces unoccupied by the plants. The present time is suitable for lifting and replanting bulbs of *Lilium candidum*, which seems to succeed best in a strong loam. The plants are very effective when massed near the front of a mixed border.

ANTIRRHINUM.—The season, so far, has been very unsuitable for Antirrhinums, and recently it has been necessary to remove, every second or third day, the flower-spikes that have gone prematurely to seed. But, by adopting this practice, and affording plenty of manure water, the plants will be assisted in producing fresh spikes of flowers. A choice selection of these flowers is exceedingly beautiful, and, besides the older Pink, Carmine Pink, and Queen of Yellows varieties, Sutton's Apricot has proved a great acquisition. The ordinary tall-growing Apricot variety, though a different shade to Sutton's Apricot, is also a striking variety, and Old Rose, which is much like Cottage Maid, is another desirable sort.

MONTBRETIA.—The varieties of Montbretia are, at the time of writing, well in flower. Though they are not exhibiting such distressing symptoms of heat exhaustion as many other flowers, it is essential to provide plenty of moisture at the roots as they will quickly set seeds if the soil is dry. At Tynningham we employ many thousands of Montbretias in borders furnished with yellow-flowering plants; all the sorts, whether sulphur, yellow, or red-flowered, harmonize well with other plants and produce a striking and pleasing effect. It would be a mistake to entirely supersede some of the older varieties with the newer, large-flowered sorts, such as Lord Nelson, Lady Hamilton, and Hereward, because some of the former are very effective, as, for instance, *M. Pottii grandiflora*, one of the

very smallest flowered of the race. The variety Vulcan, which is midway between the old and the new types, is also a good decorative plant. Associated with these is *Antholyza paniculata*, which is not yet showing flower; its backwardness in a season when many subjects are flowering prematurely is a decided advantage.

ACONITUM.—The common *A. Napellus* and its varieties pyramidalis and others are over, but clumps of *A. autumnale* and its variety album are still in bloom, the species being one of the finest blue-flowered plants now expanded. This will be succeeded by *A. Wilsonii* and still later by *A. japonicum*. All these are easily raised from seeds but once a stock has been obtained it is better to lift the plants annually and, if required to be massed, to select the strongest roots and dibble them into the ground at 9 inches apart. A clump of *A. autumnale*—associated with *Phlox paniculata* alba furnishes a very pleasing combination.

THE FRENCH GARDEN.

By PAUL AQUINAS.

SUMMER CROPS.—The bulk of the Melon crop is now practically over, the plants having grown and fruited continuously without a check. The demand for Melons has been good and the prices more remunerative than they were in the two previous seasons. The batch of Melons planted in June must not be neglected; the plants should receive an abundance of moisture during the hot weather. Cucumbers are developing many unnecessary shoots to the detriment of the young fruits; all superfluous growths should therefore be removed on at least two occasions weekly. Tomato plants are in full bearing. The fruits should be gathered as soon as possible; if necessary their ripening may be finished in a shed. The leaves may be thinned severely to the benefit of the younger trusses.

AUTUMN CROPS.—Crops of Celery, Carrots, and Cauliflowers planted either on the old manure beds or in the open ground will require systematic waterings from now till late September. If these plants are attended to carefully a good return may be expected when they are marketed, as the drought has greatly impeded the growth of all vegetables in the open fields. The Beans sown in July must not be allowed to suffer from dryness at the roots. The ground should be stirred at least once every fortnight by the hoe. Where frames are at liberty from the Melon crop, they may be placed over the Beans whilst the plants are still small.

SPRING CROPS.—Seeds for the main batch of Cabbages should now be sown thinly in frames. This sowing will probably have to provide all the plants needed for this crop, as those raised earlier are growing too vigorously and many of them may "bolt." The seedlings of these earlier sowings are ready for pricking out 3 inches apart in a nursery bed; an old manure bed is generally chosen for this purpose. Transplanting not only promotes the growth of the rootlets, but it greatly facilitates the elimination of the "bolters." The last sowing of Onions should now be made broadcast in well prepared ground. The seeds should be covered with a good layer of decayed manure. In this district, where there is a large demand for this vegetable, we make another sowing of Onions early in September in a sheltered position.

GENERAL WORK.—The programme of next season's work should now be drawn up, so that the ground may be allotted for each crop as early as possible. A place must be reserved for the stacking of the decayed manure from the old manure beds and the Melon trenches. Some of these materials may be carted away to be broken up and used for the seedbeds and ground in which the crops of Lettuces, Cauliflowers, and other crops will be transplanted. The present is the best time to undertake any improvement or alteration to the ground, including draining and levelling. The washing of the cloches should also be commenced as soon as possible; when cleansed they should be rinsed in a strong solution of copper sulphate. The lights also need to be cleansed and painted before they are stored for the winter. The present is the proper time to buy new mats for garden use.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and signed by the writer. If desired, the signature will, upon request, be kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unsolicited communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, AUGUST 22—
Roy. Hort. Soc. of Ireland Fl. Sh.
WEDNESDAY, AUGUST 23—
Shropshire Hort. Soc. Sh. at Shrewsbury (2 days).
THURSDAY, AUGUST 24—
Peelshire Hort. Soc. Fl. Sh.
SATURDAY, AUGUST 26—
Smythton Fl. Sh. Hawick Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—61°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, August 16 (6 P.M.): Max. 77°; Min. 51°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, August 17 (10 A.M.): Bar. 30.3°; Temp. 70°; Weather—Sunshine.

PROVINCES.—Wednesday, August 16: Max. 74° Cambridge; Min. 58° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY—
Trade Sale of Dutch Bulbs at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 10.
WEDNESDAY—
Trade Sale of Dutch Bulbs at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 10.
THURSDAY—
Trade Sale of Dutch Bulbs at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 10.

The general effect of the dock strike, which, in spite of the statements made a few days ago, is unhappily not yet at an end, have been described graphically and in detail by the picturesque writers of the daily Press. With these general effects, we do not propose to deal, not because they do not claim the attention of all thinking people, but because they involve political and economical considerations which lie outside our immediate work. So far as the market in Covent Garden is concerned, we have reason to know that the effects of the strike have been greatly exaggerated in many quarters. Much of the horticultural produce which, during the period of the strike, was excluded from this market consisted of choice fruits and expensive vegetables, that is to say, of luxuries rather than of necessities. Nevertheless, it is admitted that great difficulty was experienced in getting goods in and out of the market. This was due in part, of course, to the disorganisation at the docks, but also to the sympathetic feeling for the strikers manifested by the workers in Covent Garden. This sympathy was not without effect. At the time of the outbreak of the strike the porters were not associated with any union, but during the last few days meetings have

been held, and the porters have decided to form a branch of the Gas Workers' and General Labourers' Union. A certain amount of goods was introduced into the market by ingenious expedients and devices. Motors were used by a certain number of growers, many of whom themselves brought their produce to the market. Occasional furniture vans, seemingly innocent of vegetables, escaped the vigilance of the pickets, and, arrived at the market, opened their doors and discharged their unusual freight. Now and again a van loaded with vegetables made its appearance in the market under the strange escort of a posse of police. It is certain that the goods coming from abroad, France in particular, suffered most; large quantities of Greengages and Pears, known to be in transit failed to reach their destination. Not a little loss was avoided by the London agencies of Spanish shippers advising the latter by cable to postpone shipments indefinitely, or to send moderate supplies only of Melons, Onions and Valencia Tomatos. Market produce carried by rail suffered very erratically. That carried by the Great Western and South Eastern was delayed most, and that carried by the North Western least. The increased price of vegetables in London and in country districts is to be attributed by no means entirely to the strike: the abnormal heat and drought have curtailed the supply most seriously, and even though there had been no strike, prices would undoubtedly have risen. It is stated that importers of Bananas have suffered severe losses, the amount estimated in some cases at something like £12,000. We learn that the total loss of Bananas is from 70,000 to 80,000 bunches, and in illustration of the fact that "It is an ill wind that blows nobody any good," Lemons have advanced by 10s. a case. The boat "Runic," laden with Tasmanian Apples, has been unable to unload its cargo, and the "Minnehaha," which has a load of Californian Pears and Plums outside the docks, is now being unloaded. It is deplorable to think that these losses will in many cases fall upon the growers and agents, and that it may bring ruin to many a small man. One consolation to those engaged in the fruit and vegetable trade in Covent Garden lies in the fact that the strike occurred during Bank Holiday week, when the work in the market is less than at other times. There is reason to fear that far greater disorganisation and loss have occurred in other centres, such as the Borough Market, through which large quantities of perishable vegetables and fruit stuffs pass.

OUR SUPPLEMENTARY ILLUSTRATION.—The supplementary illustration shows the beautiful *Incarvillea lutea* growing wild in China, as photographed by Mr. GEORGE FORREST, whilst plant collecting on behalf of Messrs. BEES LTD. In a note on this plant Mr. FORREST writes:—Of the countless and beautiful Alpines which inhabit the mountains of N.W. Yunnan, few stand out more prominently than *Incarvillea lutea*. It is one of the many beautiful species

comprising the first collections of Abbé DELAVAY, and was found by him in 1889 on the mountains surrounding the sources of the Lang-kong river. Though possibly in later years it may be rediscovered in many parts of the province, so far it is only known from one other habitat, the southern end of the Lichiang Range. The species varies in height according to the situation, from 2 feet to 4 feet. The leaves, which are pinnate, are mostly radical; they vary from 8 inches to 15 inches in length, and have long petioles. The segments, broadly lanceolate with crenate margins, have the upper surface deeply reticulate, dark-green and glossy, whilst the under side is much lighter and sparingly hirsute. The scapes, which are stout and rigid, carry a few leafy bracts of the same form. The flowers are borne in loose spikes of 6 to 20 blooms, on short, stout pedicels, and are slightly pendulous; the tube is of a deep shade of yellow with a suspicion of apricot, but the limb is a pure, pale yellow. The calyx is campanulate, about $\frac{1}{2}$ inch by $\frac{1}{4}$ inch, strongly ribbed, the divisions short, lanceolate, acuminate. The corolla tube is from 2 inches to 3 inches in length, tapering from $\frac{1}{4}$ inch at the base to $\frac{1}{2}$ inch at the apex; the limb is fully 2 inches in breadth, and the segment broadly ovoid or round. The mature capsules are erect, 2 inches to 3 inches long by $\frac{1}{2}$ inch broad. The season of flowering is June and July. *Incarvillea lutea* is a strikingly handsome species, and should prove a rich addition to gardens. The dark, graceful foliage and richly-coloured flowers show up well in the natural habitats, which are either amongst dwarf scrub on steep, stony slopes, or scrub-covered ledges of limestone cliffs, at altitudes varying from 10,000 feet to 12,000 feet. The plants flower most freely, numbers of the specimens seen bore as many as four to eight scapes. The Supplementary Illustration shows a good average specimen in full bloom. The species ripens a great number of seeds, but it is not by any means common; only in a very few situations were the plants really numerous. The plant is a biennial, in the sense that, immediately the function of seed-bearing is at an end it dies, but a plant often takes from three to five years to reach the flowering stage. This seems to hold good in cultivation, as plants grown from seed which was sown in the spring of 1907, though now of large size and in every respect healthy, have not yet flowered. In its natural habitat the species favours dry, rather than moist, shady situations, with a free, light soil containing a large proportion of limestone chips.

MR. E. H. WILSON. After a visit extending over three months to this country, Mr. E. H. WILSON sailed for Boston, U.S.A., on Tuesday last by the steamship "Zeeland." He is returning to America for the purpose of examining, on behalf of the Harvard University, the specimens collected by him during his last two explorations in China. The herbaria number roughly about 50,000 specimens, including some 3,000 species. Conifers, collected at high elevations on the Chinese Tibetan frontier, form a considerable part of the collection.

FLOWERS IN SEASON.—Flowers of a pretty Iris, the petals being a delicate shade of mauve, are sent by Mr. AMOS PERRY, Enfield, with the following note: "I am sending you a few flowers of Iris Mrs. Alan Gray, a pretty hybrid raised by the late Sir MICHAEL FOSTER, which has the unique character of flowering at intervals throughout the season. I exhibited flowers of this Iris at the R.H.S. show at Westminster last September; this year it has been flowering since the last week in May."



Photograph by George Forrest

INCARVILLEA LUTEA, GROWING WILD IN CHINA.

NATIONAL VEGETABLE SOCIETY'S EXHIBITION.—Owing to the exceptional weather the conditions in Messrs. W. CUTBUSH & SON'S class for 25 dishes have been altered. Any kinds or varieties may be shown, provided the seeds were obtained originally from Messrs. CUTBUSH.

SMALL-HOLDERS' SHOW AT THE CRYSTAL PALACE.—An exhibition of fruit, vegetable, and general garden produce will be held at the Small Holdings and Country Life Section of the Festival of Empire, Crystal Palace, on the 29th, 30th, and 31st inst. A championship Silver Cup is offered to the competitor who secures the greatest number of points, and the "runner-up" will receive a Gold Medal. Upwards of 100 prizes, including £50 in money and many Silver Medals, are offered in the 80 classes. A keen competition is expected in the class for a collection of vegetables open to small holding and allotment societies in the United Kingdom. In order to make the exhibition a complete reflex of rural activities, prizes are offered for small-holders' produce packed for market, table poultry, eggs, butter, &c., and also for various specimens of country handicraft contributed by the small-holders' wives and children. Full details of the show and schedules may be had on application to the organising secretary of the show at the Crystal Palace.

GEORGE F. McCLURE.—We learn from the *American Florist* that Mr. GEORGE EDWARD McCLEURE is the president-elect of the Buffalo Florists' Club. He was born in Scotland, having emigrated to the United States with his parents at the age of ten years. The son of an old-fashioned florist and landscape gardener, he naturally inclined towards his father's occupation, and at the age of 17 he was in charge of the Orchid and propagating houses of the firm of WILLIAM SCOTT, of Buffalo, and at 19 had charge of the large collection of Orchids and Chrysanthemums at the establishment of KATE B. LEWIS, in the same city.

THE YIELD OF A SMALL MIXED ORCHARD.—Interesting statistics concerning the yield of a Cherry orchard in Kent, compiled by Mr. C. H. HOOPER, are published in the *Journal of the Board of Agriculture* for July. The records and prices extend over a period of 29 years, from 1882 to 1910, and relate to a grass orchard chiefly planted with Cherries at Sheldwich, near Faversham, Kent. From this orchard are sent some of the best Cherries that enter Covent Garden, and they are, in addition, carefully sorted and packed. In the opinion of the owner, the prices received represent the average prices obtained for good quality fruit from this district. The area of the orchard is $4\frac{1}{2}$ acres on loam over clay over chalk. The trees, which were mostly mature at starting, consist of 97 Cherries, 61 Apples, 27 Pears, 96 Plums, 2 Quinces, 2 Walnuts, altogether 285 trees, or 67 trees per acre. In the hedges surrounding the orchard there are about 50 Damson trees. The total net return from salemen in Covent Garden in 29 years is £1,762 6s. 5d., an average of £60 15s. 5d. per annum, or £14 6s. per acre. The owner says that, in addition, the value of fruit consumed by his household has been about £7 yearly, and he has received about £3 yearly for the grazing of the orchard by sheep. **Cherries:** The 97 Cherry trees (several of which have been re-grafted during the period with the best market varieties) have yielded 6,287½ half-bushels of 24 lbs., selling for £1,584 6s. 5d., the average annual yield thus being 217 half-bushels, realising £54 12s. 8d., or 11s. 3d. per tree. The yield has varied from 18 half-bushels, selling for

£5 8s. 6d. in 1910, to 553 half-bushels, selling for £112 8s. 3d. in 1901. The price has varied from 2s. 6½d. per half (1½d. per lb.) in 1909 to 8s. 6d. per half (4½d. per lb.) in 1897, the average price for the period being 4s. 10d. per half, or 2½d. per lb. **Apples:** The 61 Apple trees have yielded, in 24 years, 2,133 half-bushels, selling for £211 17s. 6d., an average of 89 halves, or £8 16s. 6d. per annum, or nearly 3s. per tree per annum. As in the case of Cherries, the variation in yield is very great. For instance, in 1885, the yield was insignificant (only 3 half-bushels), while in 1902 it was 273 halves, selling for £36 7s. 6d. The price per half-bushel varied from 1s. 6d. in 1891 to 3s. 6d. in 1890. The average price per half-bushel for the 24 years is 1s. 11½d. **Pears:** The 29 Pear trees in 22 years yielded 1,009 halves, selling for £93 12s. 3d., an average per tree of 3s. yearly. The maximum yield was 230 halves, selling for £18 5s. in 1909. The price varied from 1s. 6d. per half-bushel in 1893 to 2s. 11d. in 1889; average price for the 22 years, 1s. 10d. per half-bushel. **Plums:** The 96 Plum trees yielded in 12 years 436 halves, value £47 12s., an average of 36 halves per annum, selling for 79s. 4d. The maximum crop was 137 halves in 1908, selling for £10 9s. 6d. The price varied from 1s. 1½d. per half in 1909 to 3s. 4d. in 1884, the average for the 12 years being 2s. 2d. The two Walnut trees in 29 years yielded 659 half-bushels, selling for £66 10s. 6d., average of nearly 23 halves per annum, selling for £2 5s. 9d. The largest yield was 48 halves, which fetched £5 4s. 6d. in 1897. The price varied from 1s. 1½d. per half in 1909 to 3s. 4d. in 1884, the average price for the 29 years being 2s. per half-bushel.

THE SPECIES OF PELARGONIUM.—Dr. KNUTH has published* a new sketch of the distribution of the species of Pelargonium, with observations on their morphological peculiarities. The total number of species known is approximately 250, of which all except four are found in Africa. The exceptions are *P. Endlicherianum*, a native of Asia Minor, and *P. Rodneyanum*, *P. australe*, and *P. anceps*, Australian species. The two last are very closely allied to South African species, whilst the other two are distinct. *P. australe* is widely spread in Australia and New Zealand, and it also occurs in Tristan d'Acunha. Mr. CHEESEMAN suggests that "it is probably identical with the South African *P. grossularioides*," and BENTHAM, in the *Flora Australiensis* discusses the close affinities of the forms under these names. It is a curious fact that *P. grossularioides* is colonised in California, and it also occurs in the Neigherries, where KNUTH considers it may probably be indigenous. Dr. KNUTH seems to have overlooked the singular *P. cotyledonis*, endemic in St. Helena, and figured under Geranium in Andrews's *Geraniaceae*, and as *Isopetalum cotyledonis* in Sweet's *Geraniaceae*, t. 126. The greatest concentration of species of Pelargonium is in the south-west district of the Cape Province, where there are 110. On the west side two species only reach the Portuguese Congo, whereas five occur in Abyssinia. Pelargonium exhibits perhaps as great a variety in vegetative character as any genus of herbs and undershrubs. Very few are annuals, but the leaves of the perennials exhibit a very wide range of form. In some species the blade disarticulates from the stalk, which lignifies into a permanent sharp-pointed spine, serving as a protection to the plant. With regard to the root, Dr. KNUTH states that development is moderate as compared with the Monsonias of the desert, which often penetrate the soil to a depth of many metres.

DYNAMITE USED IN TILLING LAND.—According to the *Pastoralists' Review*, dynamite has been used in the place of the plough for the tilling of clay land in Kansas. Experiments were conducted on an acre field, holes being made by crowbars to a depth of 4 feet, in rows 3 feet apart, and cartridges of dynamite were inserted, these being exploded by a line of men provided with red-hot irons. The explosions threw clouds of soil 30 feet into the air, and covered the men from head to foot with dust and dirt. The method is recommended for clay soils that have not been previously disturbed.

A NEW LAWN GRASS.—For some time past experiments have been made in New South Wales with a grass, locally known as Blue Couch, for bowling greens, croquet lawns, &c. The reports collected by Mr. MAIDEN, and published in the *Agricultural Gazette of New South Wales* are very favourable to its use under certain conditions, though ordinary Couch, *Triticum repens*, is preferred for fine lawns in Sydney. Questions have arisen as to the correct name and origin of this grass, and Dr. STAFF (*Kew Bulletin*, 1911, pp. 256-261) gives full particulars on these points. *Digitaria didactyla* is the name this grass should bear, if *Digitaria* be separated generically from *Panicum*; and *Panicum didactylum*, *P. gracile* and *P. subtile* are given as synonyms. The affinity of the grass, Dr. STAFF states, lies evidently with *D. sanguinalis*, from which it differs in its perennial duration and peculiar mode of growth, the fine blades, the small number of racemes and their slender build. *Digitaria didactyla* is a native of the Mascarenes, of Madagascar, and also of the littoral of New South Wales.

EXPERIMENTS ON THE FORCING OF PLANTS.

—Everyone is aware of the methods of etherisation and immersion in warm water by which plants may be caused to pass from their resting-stage and to flower precociously. Recent experiments by Dr. Fr. JESENKO* demonstrate that yet another method may be employed for this purpose. The new method, which would not at first sight appear to be so practicable as the older methods, consists in injecting into the stems watery solutions of alcohol or ether. The process is simple. The injection fluid is contained in a vessel, and is subjected to a pressure of one to three atmospheres. Side tubes connect the vessel with the branches to be forced. Using Ribinic *Pseudacacia*, Dr. JESENKO was able to show that a 5 per cent. solution of alcohol or a 0.1 per cent. ether solution injected into cut branches caused the buds thereof to expand 26 days earlier than was the case with the buds of untreated branches. It may be noted that it is not necessary to cut off the branch which is to be forced. By attaching the cut end of a branch which remains attached to the shrub or tree to the injection apparatus, the solution may be forced into the plant and precocity of flowering induced. By the use of a morphia syringe Dr. JESENKO injected single buds with alcohol and ether solutions, and succeeded in causing the parts so treated to expand before the untreated buds. Herein is conveyed a hint which the more enterprising vine growers might avail themselves of, though as to whether the results would be successful we expressly guard ourselves from venturing an opinion. It should be added that another experimenter, Dr. WEBER, has also made independent use of the method of injection, using for the purpose the morphia syringe. Pure water is injected into the buds of Lilac, and the plants brought into the forcing house, the injected buds swell and expand long before the untreated buds.

* Bericht über die hiesige Zusammenkunft der freien Vereinigung, u. s. 1910.

* Berichte der Deutschen Bot. Gesell., XMS, 5, 1911.

PLANT ALKALOIDS.—On account of their economic and medicinal value, alkaloids have always possessed especial interest amongst plant constituents, and the chemist has paid the very closest attention to their investigation. His efforts have been two-fold, to establish the constitution of the alkaloid and to effect its synthesis in the laboratory from simple substances. Suggestions have then been based on such researches as to the possible method by which the alkaloids have been formed in the living plant. A few years back PICTET pointed out that the vegetable alkaloids could all be regarded as degradation products of the vegetable proteins, which are nitrogenous substances of great complexity. The proteins break down in the plant into simpler substances, the nature of which has been very fully studied during the last few years; these simple units are united again with formaldehyde, which, there is strong ground for believing, is continually being formed in the leaves. The new compounds so formed undergo a series of further minor changes, of such character as are well known to take place in the plant, until finally alkaloids are obtained. This explanation was shown to apply in the case of alkaloids belonging to most of the main groups, with the exception of the so-called isoquinoline alkaloids, a group which includes such important representatives as morphine and the other opium alkaloids, berberine, &c. Professor PICTET has now succeeded in filling the gap and extending his explanation to this class of alkaloids by showing that when such well-known degradation products of plant proteins as tyrosine and phenylalanine are brought together with formaldehyde they readily condense to isoquinoline derivatives, which by a series of simple changes are convertible into isoquinoline alkaloids. There are thus strong reasons for regarding all alkaloids as being built up in the plant from the degradation products of proteins and formaldehyde.

THE PRIMULAS OF THE EUROPEAN ALPS.

(Continued from p. 45.)

HYBRIDS.

So much obscurity still reigns in gardens and catalogues as to the names and characteristics of the many natural hybrids occurring between the various sub-sections of the section *Auricula* that it is full time the question was exhaustively dealt with. Unfortunately, however, the system of classification seems hardly satisfactory as yet, and much work still remains to be done. It will have to be done, though, by field botanists and gardeners, even more than by herbarium study, for the collation of dried specimens leads to an excessive rigidity and aridness of definition quite out of place in dealing with such large and diverse families as arise from the crossing of one *Primula* with another. These crosses need to be studied closely on the spot, and in gardens, in the living state, before any classification of their several characteristics can be really satisfactory. Further, we are suffering from a too minute differentiation, and from a multiplicity of unnecessary names. At present it is possible for any collector to differentiate some form of a well-known hybrid, and then to impose it on the world under a special name.

In point of fact, I would suggest that the profuse naming of hybrids and their division into separate varieties is altogether a mistake, seeing that all the named forms shade into each other invariably by an unbroken chain of intermediates. At present, for instance, the *glutinosa* × *minima* hybrid (and its reverse) is ranged under four names—*P. Huteri*, *P. biflora*, *P. Floerkeana*, and *P. salisburgensis*. But of these four, not one is distinct, as a species is distinct. *Huteri* and *salisburgensis* are both unfixed forms of *glutinosa* × *minima*; the other two are forms, no more settled, of *minima* × *glutinosa*. In either cross one could easily discover and name yet other developments, if one

chose to add confusion to confusion. For when one *Primula* produces seed after fertilisation by pollen from another, there results a large family of offspring, each liable to be as different from its brother as any members of a human family. All preserve varying degrees of intermediateness between their parents: in all, the influence of the mother remains, it seems to me, so dominant that one can always tell which way the cross has been effected, by the hybrid's approximation to its seed-parent's habit. Thus, *minima* × *glutinosa* will always show the larger flowers of *minima*, even if the stalk be taller; while *glutinosa* × *minima* will verge towards the smaller blooms and darker colouring of *glutinosa*. But, with that limitation, the range of varieties is so great in any single cross that a hard-and-fast delimitation of named varieties becomes impossible after study of them in the open field.

What one would like to suggest, then, would be some scheme by which every cross should be covered by one single name, and this, in turn, be marked off with numerical distinctions, to indicate differing degrees of likeness to their respective parents. As thus: let us take *P. salisburgensis* as the generic name of all hybrids between *glutinosa* × *minima*. But, as *P. salisburgensis* varies towards *minima* on the one hand, and *glutinosa* on the other, so freely as to offer one the chance of naming many of these developments after one's friends and relations, let us, instead, postulate a scale, with *minima* at one end and *glutinosa* at the other. This should consist of three or five hypothetical degrees, indicating the nearness of the different forms to *minima*, their mother. Thus:

<i>P. salisburgensis</i>		
	1	2
<i>P. minima</i>	1	2
	3	
		<i>P. glutinosa</i>

Then, *P. salisburgensis* 1 would indicate all those hybrids nearest to *minima* which are at present quite unsatisfactorily covered by the name *P. biflora*; *salisburgensis* 2 would mean the next range, almost exactly intermediate, with taller stems and large flowers (at present fixed to *P. Floerkeana*); while *salisburgensis* 3 would indicate the uttermost resemblance to *P. glutinosa* which the seed of *P. minima* is capable. Thus one would at least avoid the perils of a too academic definition, numbers being more elastic than specific names, and might, by some such system, escape the unsatisfactory, hard descriptions that now prevail. The system, at present, is at once too stern and too lax. A hybrid must answer to a detailed portrait: any variation from this ideal may receive a separate name. *P. Kellereri* is a variety of the magnificent *hirsuta* × *minima* cross (other named forms are *Steinii* and *Forsteri*); but with, and as, *Kellereri* I already have yet another development, much closer to *hirsuta*, paler, laxer, and less brilliant. But this wholly different form must rank still as *Kellereri*, though, at the same time, capable of being promoted into *Primula Bullock-Workmanniae*, or some such name, at the pleasure of any collector who may happen along and describe it. Whereas, if a more elastic system ruled, all *minima* × *hirsuta* crosses would come under, say, *P. Forsteri*, and the present possible *P. Bullock-Workmanniae* would simply be *P. Forsteri* 3, as approximating most closely to *P. hirsuta* at the lower end of the scale. Even in so rare a hybrid as *P. Jurbella*, only known, so far as I am aware, on the Giurbella Alp, one is able to pick out three or four differing developments, wavering more or less towards *P. minima* or *P. tyrolensis*. In common crosses, then, such as *minima* × *glutinosa*, it may be imagined what a bewildering possibility of names exists.

In taking my readers, accordingly, through the named hybrids, it must definitely be understood that these names imply no sort of hard-and-fast line between the plants they cover. The names, so far, are merely a very poor "pis

aller." In the subsection *Eu-Auricula*, the names are simply, as we shall see, a cry of abject despair on the part of the learned. None the less, so beautiful are many of the crosses, so common in gardens and so confused in catalogues, that the study of the titles that try to represent them is well worthy the pains of all who want to cultivate them and know what they are. *Reginald Farrer*.

(To be continued.)

MORE NOTES FROM NEW ZEALAND.

SINCE my first communication on New Zealand plants, I have received another letter from my correspondent, of which I quote parts.

"Several of our native *Celmisias* have already borne their handsome Daisies; but more are to follow, for the splendid *holosericea* and the poorer-flowered *rakiura* are thrusting up innumerable flower-buds. The last-named is one from Stewart Island, and is said to be a form of *C. Traversii*, though Cheeseman does not give *rakiura* as a variety, or even give that name at all. Still, I have tried to grow *Traversii*, and failed; but have found *rakiura* very easily grown, and though I have had it for very many years, it has not died suddenly, as is common with many species. *C. verbascifolia* is very prone to behave in that way. The plant will seem quite healthy and flower well, when, for no apparent reason, it will die. This is to be regretted, as its large, long-rayed flowers are a joy. Those of *rakiura* have but short floret rays, and this detracts from their beauty; but the foliage is striking and handsome. The leaves are of a dark green, thickly clothed with a brownish tomentum on the underside. Another native denizen of the rock-garden beginning to flower is *Ourisia macrophylla*. Like the *Celmisia*, it is a mountain flower. Of the several species *O. macrocarpa* and *O. macrophylla* are very much alike in flower. The flower-stem of *O. macrophylla* rises to about a foot in height, and bears whorls of white flowers, which grow after the manner and are about the size of those of *Primula japonica*. They are not, however, so symmetrical, as the petals are larger on one side than on the other. Both species of *Ourisia* require a fair amount of moisture, and, indeed, the same situation that would suit the Japanese *Primrose* would prove suitable for them. Recently, *O. macrophylla* has been introduced into England, where it has been received with acclamation, and has figured in some of the gardening publications. It is, indeed, a charming plant, a creeping species, *O. caespitosa*, which has no lofty stem, but bears each little flower on a short stalk in a wet season, will make a mat in an ordinary border; but, in dry summers, such as we have recently experienced, it disappears altogether. This is not to be wondered at, as its natural habitat is amongst the rocks and stones fringing the mountain torrents, where it receives abundant moisture. Such a mat, covered with white blossoms, suggestive of white Violets, is pretty; but it is not so showy as the other species named.

"I promised to write of our native trees and shrubs. Of trees for growing in a garden large enough to admit specimens of any size, the palm must be given to the native *Beeches* or *Birches*, as they are usually called, and of these the finest is what is known in Otago as the Red Birch, for the popular nomenclature varies in different parts of the Dominion. For example, our Red Birch (*Fagus fusca*) is the Black Birch of Nelson. Of the *Birches*, the handsomest is the Red Birch, and it, as well as other species, grows rapidly for a New Zealand tree. One in this garden, which I brought from its native forest as a tiny specimen, about 6 inches high, is now a lofty tree, with a bole measuring 47 inches in circumference at about a foot from the ground. It is, I think, one of the most beautiful of our native trees. A forest

of Red Birches, where the massive trunks uphold a roof of the lightest green, through which permeates a softened light, presents a scene of rare sylvan loveliness. Then, in the springtime of the year, how beautiful are these trees! Autumn does not tear their leaves, but the old leaves fall in spring, and, before doing so, assume the bright reds and golds of autumn. Once I visited the Rees Valley, at the head of Lake Wakatipu, at the time of the change of leafage, and was rewarded by a glorious sight. On many of the Birches the old leaves had turned a bright red, on others they had assumed a golden hue, and the young sprays, clothed with leaves of a bright yet delicate green, stood out from amidst the brighter colours. It formed a sight to linger in the memory. The garden contains well-grown specimens of Birches, such as *Fagus Solandri*, *Menziesii*, and *Blairi*, all of which are beautiful, but none equal to *fusca*. Very satisfactory trees to grow are the Ribbonwoods, especially those known as *Hoheria populnea* and *Plagianthus* (now *Gaya*) *Lyallii*. Of the former, the variety known as *angustifolia* has proved the best with me, and flowers freely every autumn. The other form, which is the handsomer tree, is, for some unknown reason, a shy flowerer. Botanically, the trees may be the same, but the leaves are totally different, as well as the time of flowering, for the narrow-leaved variety flowers much earlier, and its flowers, though more numerous, are smaller. The *Gaya*, commonly called the Cherry-flowered Ribbonwood, is deservedly popular, as it is the most beautiful of our flowering trees, not even excepting the *Rata*, or *Ironwood*. Of course, the latter is the more conspicuous, and its blaze of crimson-scarlet brightens up many a coastal bush to the south. Our flowering shrubs are numerous, and such of them as are hardy enough to stand the English climate are prized there. *Olearia Haastii*, with its tiny flowers and dull foliage, I consider one of the least desirable of our Daisy-flowered shrubs; yet, in a recent volume of the *Journal of the Royal Horticultural Society*, I find, in an article entitled 'Some Beautiful Shrubs,' the following passage: 'Generally speaking, the *Olearias* cannot be recommended for other than sheltered gardens, as they come from Australia and New Zealand; but one which should be included on account of its hardness is *O. Haastii*. This makes an excellent subject for grouping, and is grateful alike to the eye when in flower and when carrying its profusion of feathery seeds.' If the author, who is a V.M.H., can write so enthusiastically of this *Olearia*, which I consider a poor thing, what would he say to *Olearia nitida*, which grows wild on our Town Belt? When in flower, it is pleasing, for its many bunches of Daisy flowers emit a delightful perfume. Our *Olearias* are all worthy of a place in the garden, but my favourite is *nitida*. The grey foliage of *O. laxiflora* is attractive to the eye amongst the greens of other shrubs. The Japanese Maple is suitable for a small garden. Here is one of the green-leaved variety, which is fully 20 years old, and has been a joy at all seasons ever since it was planted, but more especially so in spring and autumn, when the tender green or bright-red leaves adorn its graceful sprays. Is it not a picture now, with its outer leaves brightly glowing at the tips of the branches, whilst the hue gradually merges into the lingering green of the more-sheltered leaves? Presently the whole tree will be ablaze, though a few of the leaves on the outer branches will have fallen. No wonder the Japanese are almost as proud of their Maple leaves as of their Cherry blossom. This little shrub, with leaves of the brightest red, is one that always gives a splash of colour in the autumn; but it is a very, very slow grower. It has been there many years, but is only about a couple of feet high. Its name is *Enkianthus japonicus*. It is worth having, and might grow better under more suitable conditions, but would never be a large or strong-

growing shrub. A beautiful shrub is the Tasmanian Laurel (*Anopterus glandulosus*), and it is surprising that it is not better known, since it is a native of such a near neighbour as Tasmania. It is a shapely shrub, of upright habit, with dark green leaves, and each branch is crowned with sprays of flowers resembling those of the Lily of the Valley, but with larger bells, which are sometimes slightly tinged with pink. It is an exceedingly beautiful shrub, which should be in every garden which can furnish a comparatively shady corner, for it does not love the full sun."

Gaya Lyallii (syn. *Plagianthus Lyallii*) received from this correspondent as a little plant, about 6 inches high, some years ago, is now over 10 feet in height, and flowers profusely every year. *Hoheria populnea* is grown in the south-west, and has bloomed, and there are several specimens of *Anopterus glandulosus* in Devon and Cornwall, and in the Isles of Scilly, in Mr. Dorrien-Smith's garden, there is an enormous shrub about 12 feet in height, that flowers magnificently. *Wendlandia bartramia*.

"COUCH" OR "TWITCH" *

THE terms "Couch," "Twitch," "Scutch," "Squitch," "Whickens," and "Quack Grass" are often applied by farmers in a general sense to several perennial weed Grasses which creep on or below the surface of the soil.

Three species of Grass are commonly known by the name "Couch":—

(1) True "Couch" or "Twitch" (*Agropyrum repens*, Beauv.; *Triticum repens*, L.).

(2) Black "Twitch" or Common Bent Grass (*Agrostis vulgaris*, With.).

(3) Onion "Couch" (*Arrhenatherum avenaceum*, Beauv. var. *bulbosum*, Lindl.).

These are amongst the most troublesome of all weeds of arable land, and when they are once established a great deal of expense must be incurred before the land is again clean enough for the successful growth of crops.

(1) TRUE "COUCH" OR "TWITCH."

Common Couch Grass (*Triticum repens*, L.) is one of the most commonly distributed of European Grasses, and grows on a great variety of soils. It is rarely present in pastures and meadows, but is found in almost all hedgerows and upon banks separating or bordering arable fields, and rapidly spreads from these situations over the cultivated land unless steps are taken to check it.

The plant has whitish, fleshy rhizomes, or underground stems, of the thickness of coarse string or a stout knitting needle, at the nodes or joints of which buds are produced, and also adventitious roots. From the buds arise the upright-growing stems, which come above ground and bear the ordinary green leaves, and ultimately the ears or inflorescences of the Grass. The leaves are generally somewhat hairy on the upper surface, and at the point where the sheath and blade meet there are two hook-like ears or auricles which practically clasp round the stem.

The ears or inflorescences are placed at the end of the stems, which are 1 to 4 feet long, and the ears are built on the same plan as those of Wheat, the spikelets being arranged in two rows alternately on opposite sides of the main axis or stem. Each spikelet consists of three or five flowers, and is placed so that its flat or broadest face is next the axis, whereas in the ears of perennial Rye Grass, which those of Couch resemble superficially, the spikelets are arranged with the narrow, rounded face towards the axis of the ear.

The pest is propagated in two ways, namely, by seeds and by the underground rhizomes. Ordinarily the plants have not much opportunity to flower among farm crops, but flowering specimens are commonly seen in July and August in the hedgerows. The seeds ripen a little later and are

blown on to the land, where they germinate and produce a new crop of weeds. Sometimes the seeds are introduced in unclean samples of Grass and seed Oats. Though more couch plants arise from seeds than is generally supposed, the chief mode of propagation is by means of the creeping underground stems. These spread through the soil and soon form a dense mat of couch, which it is difficult to remove. In addition to natural extension from one point of the soil to another, the plant is inadvertently spread by the farmer during the cultivation of the land. The rhizomes get broken or cut up into short lengths by ploughs, hoes and cultivators, and are moved about in the soil by these implements. Each small piece on which there is a single joint or node has its bud and set of adventitious roots, and is virtually a complete plant capable of extensive growth. It will be readily understood that a single couch plant may become broken up into a large number of such growing pieces and soon cover a wide area of ground.

(2) BLACK "TWITCH" OR COMMON BENT.

Black "Twitch" (*Agrostis vulgaris*, With.) has a creeping habit, but its stems lie on the surface of the soil, and do not creep below like those of true Couch, while they are much thinner. In some districts this is far the more prevalent kind of Twitch, true Couch being comparatively rare. The leaves are short and flat, and dull green; in some forms smooth, in others rather rough. The inflorescence is a panicle with fine slender spreading branches and purplish-green one-flower spikelets of very small size. There are no auricles at the base of the leaf-blade, but there is a membranous structure—the ligule—where the blade and sheath join. In true Couch the ligule is absent or extremely short. These differences serve to distinguish Black Twitch from true Couch when the plants are not in flower.

Black Twitch, of which there are several slightly different varieties, is as troublesome as Couch, and is propagated in the same way, namely, by seeds and by its creeping stems.

(3) ONION "COUCH."

This plant (*Arrhenatherum avenaceum*, Beauv. var. *bulbosum*, Lindl.) is a variety of tall Oat-Grass met with locally, more particularly on the lighter class of soils. It is known as bulbous Oat-Grass, knot Oat-Grass and Pearl Grass, owing to the peculiar character of its swollen root-stock. Where it has once got possession of the land it is most difficult to get rid of it entirely. The characteristic features of this pest are the swollen internodes found at the base of the stems just below the surface of the soil. Each "onion," "bulb," "pearl," or "knot" is solid, smooth, and round, about the size of a large Pea, and is capable of withstanding drought for a long time. Several are joined together, and resemble a short string of beads. They are easily detached from each other by harrows and other implements, and as each little knob possesses a bud, the pest readily spreads over the land. The inflorescence of the plant is a large panicle, the branches of which are somewhat closely pressed to the main stem both before and after flowering. The spikelets and "seeds" are as large as those of a small Oat, and resemble them in form; the flowering glume has a bent, twisted beard or awn attached to it.

PREVENTIVE AND REMEDIAL MEASURES.

1.—As all these pests are spread by means of their seeds, which are easily blown about, every effort should be made to prevent flowering, and great care should be taken to procure Grass seeds and seed Corn free from the seeds of these weeds.

2.—Hedgerows must be kept clear of these pests, for seeds are freely disseminated from plants growing in such positions. Moreover, if the hedgerows contain Couch of any kind, it will grow out into the headlands, and the first harrowing spreads pieces of rhizomes or the small "bulbs" of Onion Couch further into the field, and year by year the weeds extend.

* Part I of Agriculture and Fisheries (Lancet No. 249).

3.—Where the Couch has become established, repeated ploughing, grubbing, and harrowing must be practised in order to reduce it. The land should be ploughed at first with a shallow furrow, and as much as possible of the weed collected by grubbing and harrowing when the soil is in just the right state of dryness to leave the roots and creeping stems of the weeds easily. The passage of a roller over the land greatly assists the harrows and cultivators to shake off the soil from the Couch and allow the collection of the weed in unbroken lengths. Especial pains should be taken in the case of Onion Couch to collect the detached "bulbs." After gathering together, the weed should be burnt in heaps and the ashes spread over the land.

Care should be taken not to grub or harrow in wet weather, especially on the heavier kinds of land, or much mischief will be done. When wet, the clods are cut or roughly broken by implements into irregular lumps rather than pulverised, and the creeping stems are severed into short lengths too small to be effectively gathered by any implement. A similar state of things also arises when the land is too dry. There is a time in the drying of ploughed land when the soil readily falls into a fine, crumbly powder, and leaves the roots and rhizomes of weeds clean, and it pays to examine the soil carefully from this point of view before attempting to drag out weeds from it.

4.—A short rotation, including extra root or hood crops, will be of great value in combating all species of "Couch." After cleaning in the manner indicated under section 3, the land should be sown with Mangolds or other root crops, or with Beans, and the horse-hoe with grubbing tines should be kept at work between the rows as long as possible.

5.—Rape, Vetches, or other similar crops which will grow luxuriantly and smother weeds may be grown with advantage.

6.—In some cases isolated patches of Couch may be forked or dug out and carried off the land.

7.—Should Onion Couch have become so plentiful that a field is over-run with it, paring and burning may be necessary to eradicate it.

8.—Common Couch (T. repens) may be eradicated by laying land down to grass for three or four years.

SCOTLAND.

SALES FOR AGRICULTURAL PURPOSES BILL.

A largely attended meeting of the members of the Scottish seed trade was held recently to consider the Sales for Agricultural Purposes Bill so far as it affects their interests.

The chair was occupied by Mr. Bell, of the firm of Messrs. Bell and Bieberstedt, seed merchants, Leith, and among those who took part in the discussion were Mr. Mather, Kelso; Mr. Elder, Haddington; Mr. Cairns, Glasgow; and Mr. Thom, Ayr.

The principal objections to the Bill were regarding the clauses giving power to inspectors to enter warehouses and to take samples, also demanding, if they choose, the names and addresses of the sellers to the firm. The feeling of the meeting was in favour of a well-equipped testing station, where merchants and others could have their seeds tested before distribution, and farmers could have their purchases tested if they so desired.

It was agreed to send a statement recording the views of those present to Lord Clinton, the chairman of the House of Lords Committee on the Bill.

NEW PUBLIC PARK FOR MUSSELBURGH.

A new public park for Musselburgh, presented by Mr. C. D. Brown, Corstorphine, Edinburgh, and his brother, Mr. Julius A. Brown, California, in honour of their father, the late Bailie Brown, Musselburgh, was recently opened for public use by Mrs. C. Douglas Brown, after her husband had handed over to the Provost the deed of gift. The park is about 16 acres in extent, and has been laid out from plans prepared by Mr. J. W. M'Hattie, of the Edinburgh public gardens.

THE COUNTESS OF SELKIRK'S COTTAGE GARDEN PRIZES.

For a considerable number of years the Countess of Selkirk has offered prizes for the best kept cottage gardens and climbers on the estate of her late husband, the Earl of Selkirk, St. Mary's Isle, Kirkcudbright, and this year Lady Selkirk added to these a class for window boxes belonging to working men in the burgh of Kirkcudbright. Mr. Gilbert Anderson, Portmarty Gardens, acted as judge, and visited the 34 gardens in the competition.

GRANT TO A HORTICULTURAL SOCIETY.

THE Dumbarton County District Public House Trust have granted the sum of £2 2s. to the Clydebank Horticultural Society, and £5 5s. to the same society for garden plots. The amounts are small compared with sums granted for other objects, such as bowling and other recreation clubs.

NEW PARK AT PORTSOY.

ON Coronation Day a new public park was opened at Portsoy, Banffshire, by Provost Smith, who is a generous benefactor to the burgh. At the opening ceremony Mr. Smith promised a gift of £1,000 for local purposes.

THE EFFECTS OF THE DROUGHT IN SCOTLAND.

THE complaints regarding the effects of the drought in Scotland are very general and point to a state of affairs which is rarely experienced. The drought is especially felt by fruit growers and market gardeners, and more than one grower of long experience state emphatically that the season is the worst in their recollections. Potatoes are the only crops which are satisfactory, and even these have suffered in some places considerably, with the result that a substantial advance in prices has taken place. Peas and other culinary produce are very scarce.

PERTHSHIRE FRUIT-PICKERS' WAGES.

THE labour unrest which has been manifested in various industries has also been prevalent in the Blairgowrie district of Perthshire, where the pickers employed at the fruit farms have been asking for higher wages and better sleeping accommodation. The general rate of payment has been 4d. per lb., but some growers have been giving 3d., and, with a view to secure this rate generally, a meeting was recently held at Blairgowrie, when a resolution embodying the demands as indicated above was carried. The following forenoon a number of pickers went on strike because they were refused the 4d. They secured employment elsewhere at the rate demanded.

TREE SET ON FIRE BY LIGHTNING.

AT Haddo House, the seat of the Earl of Aberdeen, on the 10th inst., a fine old Fir tree within the policies was struck by lightning when the storm was at its height. The lightning ignited the green tree, which continued burning for 24 hours. This is believed to be a unique experience so far as the effects of lightning are concerned in northern districts.

LAW NOTE.

FERTILISERS AND FEEDING STUFFS ACT.

At Wonford, Devonshire, on July 25. Horatio Clarence Furniss, of the National Guano Co., Liverpool, was summoned for selling a fertiliser with a false invoice. The fertiliser was deficient in soluble phosphates to the extent of 2.94 per cent., and Mr. Thos. Lambert, analytical chemist to the company, stated that the soluble phosphates must have been converted into insoluble phosphates by chemical reaction.

The Bench imposed a fine of £10 with costs.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

COLCHICUMS AS EARLY BULBS.—The season of the flowering of Colchicums began in July with Colchicum odoratum, a species much resembling C. agrippinum. This was followed during the early days of August by C. lingua-tum, which has a large-sized rose-coloured flower. From now onwards we shall not be without Colchicums until after the end of the year. T. Smith.

"COVERING THE UNION" (see p. 114).—Will Mr. Slade explain what special motive he has for planting grafted Apple trees so low down that the union is covered with soil and also how the healthiness of that union is affected by a covering of soil? Does he assume that the soil covering induces roots to grow from the grafted tree above the union, or does he mean to convey the impression that the coating of soil checks canker, whilst exposure of the union to light and air favours this disease? But this argument seems to be based on the assumption that Apple trees, Cox's Orange Pippin, or any others, are prepared in nurseries for sale by grafting, whereas it is well known that the great majority are propagated by budding, which produces a very different union from that of grafting. Large numbers of Apple stocks headed high up and grafted on perhaps numerous stems, carry robust, healthy heads for many years, yet the graft unions are not covered with soil. But after all, has not root action and the kind of soil more to do with the spread of canker than anything else. Large numbers of trees, including Cox's Orange Pippin, if planted in a sweet, well-drained soil, the roots being kept near the surface by feeding, remain for a long time healthy. But how many of such trees have been ruined in market orchards by the practice of planting bulbs between the rows or of otherwise surface cropping, with the result that the trees only possess deep-growing roots, not only because the soil is exhausted by the surface crops, but also because the ploughing or digging destroys any surface roots that are formed. When Mr. Slade refers to the approved Paradise stock, presumably he means the broad-leaved or so-called English Paradise, which is held to have originated at Sawbridgeworth. D.

ROSA HEMISPHERICA.—That this Rose is shy to bloom is accounted for by the improper treatment it receives. The plant flowers annually at Tynningham, and so freely that the flower-buds need to be thinned. The variety does not even require to be planted against a wall as many suppose. As I advised in a recent Calendar on the Flower Garden, under its old name of R. sulphurea, the older shoots should be removed after the flowers are over and only a few of the stronger young ones left, which produce flowers from almost every bud. The variety was first introduced to England about 1600, but it was lost; not long afterwards John de Frangueville reintroduced plants, and in 1629 the species seems to have been common in cultivation. Rosa hemispherica is undoubtedly one of the most beautiful of yellow Roses, both in form and colour. R. P. Brotherston, Tynningham, Gardens.

THE WASP PLAGUE.—In addition to the profuse dropping of Apples, which is mentioned in reports from various parts of the country in the Board of Agriculture Report for August, the fruit grower is troubled with the worst plague of wasps which has been known in my experience. These insects have damaged far more Apples than birds have spoilt this season, although about 40 nests have been destroyed on my farm. They do not wait for birds to peck holes for them, but eat their way through the skin and leave little but skin when they have done with a fruit. This is another inducement, in addition to the dropping of the fruit, to gather Apples before the usual time for each variety. There is a great disadvantage in this proceeding, as the markets are likely to be glutted with Apples thus prematurely gathered. In the case of Plums, if any are left to ripen fully they are consumed by wasps. I have lost some bushels in this way. A Southern Grower.

"MIMICRY" IN PLANTS.

THE interesting series of photographs reproduced in nos. 63 and 64 illustrate how remarkable are the resemblances which may exist between plants belonging to widely separated families; for example, between *Cotyledon linearis*

and that when the mimicker bursts into flower the disguise is thrown off and the plant stands revealed for what it is.

Though we may use the term "mimicry" to denote these striking resemblances between widely-separated species, it is as well to remember that the term does not imply anything more than

theory can be put forward on behalf of "plant-doubles." Just as misery makes strange bed-fellows, so certain conditions of life induce in plants definite physiognomies, and if dissimilar plants are exposed to similar conditions, there arise, though it is true but rarely, close resemblances between plants originally quite unlike one another. The fact that mimicker and mimicked among plants may come from opposite ends of the earth is sufficient in itself to do away with the necessity for any such explanation as that put forward by zoologists and to show that mimicry among plants is but a curious exercise on the part of "the long arm of coincidence."



FIG. 63.—PLANT MIMICRY.

Pelargonium sp. collected by Prof. H. H. W. Pearson in Namaqualand.

Euphorbia sp. from Transvaal collected by Mr. Gaipen, Nov. 7, 1900.

[Photograph by C. P. Raffill.]

(Crassulaceæ) and *Euphorbia balsamifera* (Euphorbiaceæ). It is noteworthy that the latter family is peculiarly adept at producing these vegetable doubles. One unnamed species of *Euphorbia* from the Transvaal is the very image of a species of *Pelargonium* collected by Professor Pearson in Namaqualand (fig. 63). *Euphorbia polygona* from South Africa and *Cereus polylophus* from Mexico are almost as like as identical

a chance and casual though close similarity between certain pairs of plants. Indeed, "plant-doubles" would be a more appropriate term. Among zoologists the term "mimicry" has a more precise significance, and those who follow Darwin and Bates seek to explain cases of mimicry among insects in terms of utility. The mimicking insect is supposed to have gradually assimilated its form to that of the mimicked species



FIG. 64.—PLANT MIMICRY.

[Photograph by C. P. Raffill.]

A, *Cotyledon linearis* (California).

B, *Euphorbia balsamifera* (Canaries).

C, *Cereus polylophus* (Mexico).

D, *Euphorbia polygona* (S. Africa).

E, *Echinocactus macrodiscus* (Mexico).

F, *Euphorbia meliiformis* (S. Africa).

twins, and, as indicated in fig. 64, *Euphorbia balsamifera*, a native of the Canaries, "imitates" the Californian *Cotyledon linearis* with flattering closeness.

It need scarcely be remarked that these resemblances are confined to the vegetative organs,

and to secure protection from the fact that insect-eating enemies may mistake it for the noxious species which it resembles. Whether or no this theory of insect mimicry will stand the test of criticism is a matter of dispute between rival schools of zoologists. In any case, no such

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, ante, pp. 61-70.)

(Continued from page 116.)

4. MIDLAND COUNTIES.

NORTHAMPTONSHIRE.—Damsons, Plums, and Walnuts are very plentiful. Apples also are very good, but the trees are rather blighted. The Corn crops are looking well, but the Hay crop was a very light one. Root crops are late. *Thos. Myster, Lower Shuckburgh, Daventry.*

—The fruit crops in this district are, with the exception of small fruits, below the average in yield. Plums vary greatly; in some places the trees are heavily cropped, whilst in others they are bare of fruits. The Apple crop is the best. Pears are very scarce everywhere. Of bush fruits, Gooseberries are the best, and Black Currants the worst. *T. Foster, Biddlesden Park Gardens, Brackley.*

NOTTINGHAMSHIRE.—Apples are a heavy crop. Pears, Apricots, and Plums are not so good, although the trees were covered with blossom, and at one time promised to give good crops. When the fruits were of the size of Peas many of them turned yellow and dropped, owing to the strong gales of wind which prevailed whilst the trees were in flower. Peaches and Nectarines are very good crops, and the fruits are of fine quality. Strawberries were a heavy crop, and the berries of excellent quality. Sweet Cherries also were plentiful, but Morello Cherries are only average. All other small fruits are plentiful and of splendid quality. Early Potatoes have done well. Our soil is light in texture, and it rests on a subsoil of sand. *James B. Allan, Osberton Gardens, Worksop.*

—Apples are patchy, some trees have full crops, whilst others have very few fruits. Plums and Pears are much under the average. We do not remember such a marvellous show of blossom; all the trees were smothered with bloom, but the individual flowers were not of large size, and, owing to the cold weather, but few insects were observed. Plums and Pears fell off when they seemed to be setting, and many Apples fell during the drought. Gooseberries are very fine, but Currants and Raspberries are of small size owing to the dry weather. Strawberries were a grand crop, but after a long period of drought $1\frac{1}{2}$ inch of rain fell just as the berries were at their best, and many were spoiled. Attacks of aphid have been very severe, and constant sprayings have been necessary. *J. R. Pearson & Sons, Loughborough.*

OXFORDSHIRE.—This was a record year for blossom on all fruit trees, and with one or two exceptions the result is most satisfactory. Blight was very prevalent, but some heavy thunder showers helped to clean the trees of the pests. Another storm is needed to free the Beams from aphid, as no amount of syringing will check the pest. Our soil is a light loam on chalk and gravel, and the crops soon feel the effects of a dry summer. *John A. Hall, Shiplake Court Gardens, Henley-on-Thames.*

—With the exception of Pear trees all other trees had really too much blossom. The result is that some trees have too much fruit, and where Apples and Plums have not been thinned in good time they will be under an average size. This is a Cherry county, and although the trees presented such large masses of bloom, the crops (except here and there) are

disappointing. Bush fruits and Strawberries are very good. Our soil is shallow and stony. *A. J. Long, Wyfold Court Gardens, Reading.*

Apples in this locality are exceedingly good, in both clay and gravelly districts. Pears are not plentiful; many fruits were affected with the Pear midge (*Diplosis pyrivora*). Plums are a very heavy crop, but the trees are smothered with aphids. Peaches and Nectarines are good, even crops generally. The flowers of Apricots were, in many instances, very small and deformed and failed to set satisfactorily. Cherries, Strawberries and Black Currants were badly affected by drought during May, and although plentiful, the fruits were small. Red and White Currants, Raspberries and Loganberries are all splendid crops. *F. W. Pearce, Kynsham Hall Gardens, Witney.*

Apples are dropping very badly, owing to drought. We had a few Black Currants only, the bushes being blighted, and the same remarks apply to the Cherry crop. Strawberries were a glut, but they were soon over. *A. W. Perry, Middleton Park Gardens, Bicester.*

I attribute the scarcity of Peaches and Apricots to cold winds, which prevailed when the trees were in bloom; there was a splendid show of blossom. *T. Whiting, Shotover Park Gardens, Wheatley.*

Apples are a very fair crop. Trees of Peasgood's Nonesuch, Lane's Prince Albert, Blenheim Pippin, Cox's Orange Pippin, and Duchess of Oldenburg are all carrying heavy crops. Pears are rather scarce: the fruits set very badly, owing to the cold winds at the season of blooming. Plums are very good. The following varieties are yielding good crops: Early Rivers, Kirk's, Victoria, Jefferson, Cox's Golden Drop, and Cox's Emperor. Cherries were a very satisfactory crop, especially such varieties as Early Rivers, Governor Wood, Black Eagle, and Archduke. Peaches and Nectarines are scarce, owing to the frost at the time when the fruits were setting. Apricots were affected at the same time. Black Currants, Red Currants, Raspberries and Gooseberries were excellent crops, Raspberries, in particular. Strawberries have also been a fine crop, and the fruit has been up to the best standard, but the season was a short one, owing to dry weather. Nuts are abundant, but the trees require rain. Our soil is of a very light nature, and the fruit trees require heavy mulchings in a dry season. *Geo. Hunter, Blenheim Palace Gardens.*

SARUMSHIRE.—Owing to the hot, dry weather Apples are dropping freely. Blight also has been very troublesome. Raspberries were a very good crop, but the fruits were not so large as usual. Strawberries have been plentiful and the berries fine, but the season was a short one. Apricots are a very poor crop, owing to cold weather and late frosts in spring. Peaches are very unsatisfactory in the open, although there was plenty of blossom. *George Riscrow, Hatton Grange Gardens, Shipnat.*

The Apple crop in this neighbourhood varies considerably. Trees of Cox's Orange Pippin, Worcester Pearmain and Devonshire Quarrenden are carrying very large crops. Lord Suffield, Lane's Prince Albert, and Lord Derby are also grand crops amongst culinary sorts, but trees of many others, including Bramley's Seedling, are almost fruitless. Cold winds whilst the trees were in flower may have been the cause of the failures of most sorts, for all the trees flowered well, although some of the flowers seemed weak. Strawberries gave the best crop for many years, especially late varieties, such as Givon's Late Prolific, and Laxton's The Latest. *Alex. Haggart, Moor Park, Ludlow.*

Blight has affected most of the fruit trees, and this, with cold winds in spring, has spoiled the fruit crops. Peaches and Nectarines are the worst crops for 40 years. There was a good show of blossom, but the cold winds destroyed the young fruits. We have more blister on the foliage of Plums than I have ever known, and the blight has been followed by an attack of aphids. The intense heat dried up Strawberries and Raspberries. Black Currants were very badly blighted. Taken altogether, this is a very trying

and disappointing season. *J. Taylor, Hard-wooke Grange Gardens, Shrewsbury.*

WARWICKSHIRE.—What promised at one time to be a very good fruit year is disappointing. Apricots and Peaches were injured by east winds during the flowering period, and failed to set. Plums suffered a good deal from the hot, dry weather in May, also from blight, and many fruits dropped. Strawberries were earlier than usual, and, although they cropped well, were soon over, owing to dry weather and a light soil. Small fruits were well up to the average, with the exception of Black Currants. *H. F. Smale, The Gardens, Warwick Castle.*

Considering the large amount of blight on the trees this year, the fruit crops in these gardens are very satisfactory. Gooseberries, Red Currants, Raspberries, and Strawberries were abundant crops. Black Currants promised well, but, owing to blight, the bushes are quite bare of fruit and foliage. Apples, Plums, and Damsons are all good, but Pears are a poor crop. *Chas. Harding, Ragley Hall Gardens, Alcester.*

5. SOUTHERN COUNTIES.

BERKSHIRE.—Dessert Pears are below the average, due, I believe, to an absence of sunshine last season, with the result that the wood did not ripen properly. The Apple crop is much better than was expected earlier in the season. We have no Plums on standard trees, which I attribute to the same cause as the failure of Pears. Black Currants are very bad, but Red and White Currants are good. Raspberries were an average crop, and Gooseberries were very good; Loganberries also are good. Strawberries suffered considerably from drought. *F. Capps, The Gardens, Charters, Ascot.*

Although spring gave promise of such an abundance of fruit, the crops, generally, are rather disappointing. Pears and Plums have dropped considerably. Peaches have suffered much from aphids, and this crop is almost a failure. Raspberries and other small fruits were badly affected by heat and drought, our soil being light and porous. Walnuts and Cobnuts are good crops. Strawberries were a heavy crop, but the season was of short duration. Apples are a good crop, but the fruits are rather small, and are now feeling the effects of drought. *J. Howard, Benham Park Gardens, Newbury.*

Apple trees flowered freely, and such varieties as the following, amongst others, set good crops:—Irish Peach, Lane's Prince Albert, Beauty of Bath, Newton Wonder, Cox's Orange Pippin, Potts's Seedling, Allington Pippin, Lord Derby, Duke of Devonshire, Lady Sudeley, Sandringham, Ribston Pippin, Peasgood's Nonesuch, Miller's Seedling, Beauty of Hants, Warner's King, Bismarck, and Mère de Ménage. *W. Fyfe, Lockinge Gardens, Wantage.*

All fruit crops here are good, with the exception of out-door Peaches and Apricots, which were blighted early in the season. Strawberries have been good, the best varieties this year being Royal Sovereign, Epicure, Pineapple, Givon's Late Prolific, Waterloo, and Laxton's Perpetual. Epicure is a splendid cropper, the fruits being of good flavour and colour. Apples are an abundant crop, and the trees are healthy. All bush fruits are good. Pears are good on Cordon trees, the foliage and fruits being clean and free from spot. *A. B. Wadds, Englefield Gardens, Reading.*

DORSETSHIRE.—Judging by the amount of blossom on fruit trees of every kind, this should have been a record fruit year, but the early promise has not been fulfilled. The weather was bleak and cold, east winds and frosts prevailing for a long time when Apricots were in bloom, and although the Apricot trees were protected by a glass coping and nets, the crop is small in comparison to the large amount of blossom. The great majority of Apples have done very well. Aphids of various sorts has been very persistent on Cherry and Plum trees, causing much trouble in washing and spraying. Bush fruits are excellent. Strawberries had to be freely watered when the berries were swelling, and again now to save the plants from dying. Our Gooseberries just escaped a severe frost, the flowers not being

quite expanded at the time. I hear of others who have short crops of Gooseberries. Our soil is of a dark, friable nature with a fairly good clay subsoil. *A. Shakelton, Forde Abbey Gardens, Chard.*

Apples may be considered an average crop of good quality fruits on both bush and orchard trees; it is certainly a Cox's Orange Pippin season, this variety being good alike on both bush and orchard trees. Pears are a very poor crop. The blossom set on wall trees, but the fruit dropped after it had grown to a considerable size. Plums are an average crop of most kinds, but aphids have been more than usually troublesome this season. Sweet Cherries have been the best crop in my recollection, but Morellos are a much lighter crop. Peach and Nectarine trees grow too strongly in our clayey soil to ripen the wood in such sunless seasons as those of 1909 and 1910. The same remark applies to Apricots, which have partly failed two seasons in succession. We experienced the coldest weather of last winter from April 4 to 8 inclusive, when we had as much as 10° of frost with a cold, north-east wind. Bush fruits were in full bloom at the time, and, in consequence, we had a thin crop of Gooseberries, but Currants were better. Strawberries were most satisfactory. *T. Turton, Castle Gardens, Sherborne.*

Apples promised well for a good crop, but less drought continues. Several sorts of Pears are cropping well. Plums are a good average crop. The trees have been badly attacked with aphids, which the hot weather has favoured. Both sweet and Morello Cherries have done well, though the fruits were small, owing to the drought. Gooseberries proved a very heavy crop, and Currants a good average one. Strawberries flowered most profusely, and the fruits set well, but the extreme heat and lack of rain shortened the season. Walnuts are a heavy crop, but other Nuts are scarce. The soil here is rather light and shallow, resting on chalk. *Thos. Denny, Down House Gardens, Blandford.*

The fruit crops on the whole are very satisfactory. Raspberries and all kinds of bush fruits proved extra heavy crops. Strawberries gave an enormous crop, the berries being large and of excellent flavour. Two-year-old plants of Givon's Late Prolific produced some grand berries. The rains during the heavy thunderstorms experienced during the latter part of May and the first week in June helped to swell the fruits. On June 5 the rainfall registered 0.94 inches, and for the whole month of June 2.85 inches. Apples are a very heavy crop, and the fruit appears to be clean and free from spots. Constant spraying both winter and summer is practised in these gardens. *J. Rogers, Langton Gardens, Blandford.*

The cold weather in April damaged many of the fruit blossoms, and Raspberries suffered severely from this cause. Strawberries have been abundant, but the berries were small. Givon's Late Prolific yielded the largest fruits. The out-door crop of Figs promises to be a good one. Pears are scarce, the April frosts and cold winds doing much damage to this crop. The garden is situated on a slope facing south by south-east. The natural soil is fairly stiff in texture, but shallow; the subsoil is chalk, with, in places, clay and flints. *J. Jaques, Bryanston Gardens, Blandford.*

There was every prospect of a good fruit season, but owing to the excessive drought and heat Plums and Cherries dropped freely, but Apples and Pears are very good indeed, and especially Apples. Gooseberries and Currants are better than usual, but the Raspberries and Strawberries were dried up. With the exception of two showers on June 15 and 25 respectively, we had seven weeks of dry weather and very hot sunshine. In several instances the thermometer rose to 110° Fahr., and in one case it went to 120°. The soil in which most of our fruit trees are growing is a clayey loam with an ironstone subsoil. Generally the fruit crops in this district are good. *H. Kempshall, Abbotsbury Gardens.*

HAMPSHIRE.—Apples are a plentiful crop, the trees clean, and making plenty of healthy growth. The hot weather is causing some of the

fruit to drop, but not to any serious extent. All varieties are well laden, especially Cox's Orange Pippin, Worcester Pearmain, Lady Sudeley, Bramley's Seedling, Lord Grosvenor, Lane's Prince Albert, Mère de Ménage and Bismarck. Strawberries were an enormous crop of good fruits. The varieties Royal Sovereign, Bedford Champion, Leader, and Sir Joseph Paxton are the most popular sorts. Bush fruits, including Raspberries, Gooseberries, and Currants, have all cropped well. *E. Molyneux, Swanmore Park, Bishop's Cleeve, Wiltshire.*

—The fruit crops in this neighbourhood are disappointing. Trees and plants of every variety of fruit blossomed abundantly, but the results are far from satisfactory. Apples are a good average crop of clean fruits, but the trees were attacked by caterpillars. Apricots are very scarce, and the trees have been attacked by aphids. Pears are a light crop, but the fruits are clean. Of small fruits Gooseberries and Red Currants are the best crops. Black Currant bushes were badly infested with aphids early in the season, and never seemed to recover from the bad effects. Strawberries were a good average crop of sound fruits, but owing to the heat and drought the berries were soon over, as were also Raspberries. *A. G. Nichols, Strathfieldsaye Gardens, Mortimer, R.S.O.*

—Apple trees are looking very well and carrying an enormous crop of fruits. Pears, although the trees were protected with nets, are very scarce. Fruits of Plums and Cherries set well, but owing to dry weather during the end of May and the beginning of June about two-thirds of the crop dropped prematurely. Gooseberry and Currant bushes have a fair crop of clean fruits, the plants having been sprayed. The soil here is light and gravelly, resting on clay. *R. Learmouth, Sherfield Manor Gardens, Bishopstoke.*

—All fruit trees blossomed well, especially Apples, which are carrying a good crop of fruits. Strawberries were an extra large crop, especially of the varieties Royal Sovereign and The Laxton. Currants, Gooseberries, and Loganberries are all excellent crops. Cherries are not largely grown in this district, the soil being deficient in lime and not suited for stone fruits. *Henry Marten, Barley Lodge Gardens, Cadnam, Southampton.*

—There was a splendid show for all kinds of fruit early in the season, but a heavy fall of snow and late frost in May ruined the prospects, besides which green and black aphids have been unusually numerous. Strawberries have been very plentiful, whilst Gooseberry bushes are breaking down with the weight of fruits. Dessert Cherries are a failure, although Morello's are very good. Plums on wall trees are very satisfactory. *R. G. Onslow, Dogmersfield Park Gardens, Winchester.*

—Apples are a splendid crop and the fruits very clean, the trees being free from aphides, with but few caterpillars. Pears are generally a thin crop, but the fruits are of good quality. Gooseberries, Red and Black Currants are very full crops. Raspberries and Strawberries are excellent, both in crop and quality. Our soil is a medium to heavy loam, with clay and flint subsoil. The gardens are situated 500 feet above sea level. The rainfall from January to June 30 amounted to 11.52 inches; during 1910 to 19.37 inches. *A. W. Blake, The Castle Gardens, Highgate.*

KENT.—Apples are very patchy. A few orchards have more than an average crop, whilst others have considerably fewer. It may be interesting to relate that almost all varieties of the Codlin type are cropping well. Lord Suffield, Golden Spire, Mank's Codlin, Keswick Codlin, Cox's Orange Pippin, and Ribston Pippin are all carrying average crops. Other varieties are much below the average. Pears are not only a poor crop, owing to the effects of the Pear Midge, but the fruits are badly attacked by black scab disease. Plums and Damsons promise well. Cherries are cheap and good, the crop being above the average. Small fruits, and especially Gooseberries, are quite up to the average quantity, and of good quality. Owing to the want of rain, Strawberries were over somewhat early; still, there was a big crop of splendid quality berries.

Nuts promise well. *George Woodward, Barham Court Estate Gardens, Maidstone.*

—The promise of an abundant yield was marred by the snow and frosts in May. The amount of blossom was wonderful, but Currants and Gooseberries have "run off," and Pears of choice sorts are very scarce. Aphides have been very numerous, and only kept under by diligent sprayings. Apples on the Paradise stock, planted about 16 years, are a splendid crop. Out of 400 varieties only two have failed to bear, so much for inter-pollination. Our soil is of the lower greensand stone formation, the nursery being situated 80 feet above the sea level. *George Bunyard, Maidstone.*

—The early prospects of a general good crop of fruit will not be realized. Apples have dropped very considerably, whilst Pears on many trees in the open have almost all fallen. Plums appeared not to set satisfactorily, and at the present time the trees are badly infested with aphids. The Strawberry season, though short, was satisfactory, the fruits being abundant and of exceptionally fine flavour. *Geo. Fennell, Bowden Gardens, Tonbridge.*

—The finest crops in this district are very uneven; in some places they are very good, and in others unsatisfactory. Apples are a good crop, but Pears are scarce in most places. Plums are a thin crop. Strawberries were plentiful and of fine quality. Sweet Cherries and Raspberries are very good, but Black Currants are scarce. No doubt the frost early in June was the cause of the fruit crops in general being so uneven, as the appearance of the trees in the early spring could not have been better. The soil in this district overlies the chalk, and some of the soil is of very good quality. *J. T. Shann, Betteshanger Park Gardens, Eastry, Dover.*

—Small fruits are much earlier than usual in this district. Strawberries were a heavy crop, and the berries of good flavour, but owing to the prolonged drought the latter part of the crop did not ripen properly. Currants and Raspberries are both very good indeed. All fruit trees bloomed profusely, but Pears did not set well, and the crop is a thin one. Plums are an excellent crop in this district. Nuts promise to be plentiful, and Loganberries also are fruiting well. The soil here is a heavy, retentive loam, and crops generally do well in a hot season. *J. G. Weston, Eastwell Park Gardens, Ashford.*

(To be continued.)

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 15.—The Committee met as usual on Tuesday last, but there was no exhibition, workmen being in possession of the Hall, which is being redecorated. Only a few Committeemen were present in each section. Exhibits presented before both the FLORAL and FRUIT and VEGETABLE COMMITTEES were of very little importance, and neither committee granted an Award; but the ORCHID COMMITTEE found plenty to do, and granted one First-class Certificate and three Awards of Merit.

Floral Committee.

Present: George Gordon, Esq. (in the Chair); and Messrs. E. H. Jenkins, Charles E. Pearson, Herbert J. Cutbush, J. W. Barr, W. J. Bean, and John Green.

Three scented-leaved Pelargoniums and a Zonal-leaved variety were presented for awards, but they showed no advance on existing varieties. These subjects were all the Committee had to consider, beyond a Fern submitted for naming.

Orchid Committee.

Present: William Bolton, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.), J. Charlesworth, W. H. White, and Walter Cobb.

MESSRS. CHARLESWORTH & CO., Haywards Heath, showed the rare Houlettia Wallisii with decumbent spikes of wax-like, pale yellow flowers spotted inside with red. The plant was referred to the Scientific Committee at its next meeting. This firm also showed the new Odontonia Louise

(Miltonia Warszewiczii × Odontoglossum Osulstonii) with pretty bluish-white and rose-coloured flowers, and Pescatorea Rozellii superba, the handsome white flowers being tipped with crimson.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed a magnificent spike of Lissoschilus giganteus about 12 feet in length, with 30 large, rose-coloured flowers as well as several buds; also Trichopilia Lehmannii. (See Awards.)

Sir JEREMIAH COLMAN, Bart., V.M.H., Gattin Park, Reigate (gr. Mr. Collier), showed Odontodia Graireana (C. Noezliana × O. Rossii) with sepals and petals spotted with red, the whitish lip having rose-coloured markings.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed Lælio-Cattleya Lady Chance (L.-c. elegans Turneri × C. bicolor), a pretty hybrid having bronzy-rose sepals and petals, and a purple lip with white base.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), exhibited the very richly coloured Sophro-Lælio-Cattleya Goodsonii (see Awards), and Lælio-Cattleya Ernestii (L.-c. Ingramii × C. Dowiana aurea), a large and handsome flower of a clear rose colour with maroon front to the lip, which has an orange-coloured disc.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), showed Cattleya Rhoda Fowler's variety (Iris × Hardyana), a beautiful flower with greenish-primrose sepals and petals and deep claret-coloured lip.

MESSRS. SANDER & SONS, St. Albans, showed Cattleya viviana (velutina × Fabia), a pretty flower with brownish-rose sepals and petals and broadly developed rose-veined lip; also C. micans (Warszewiczii × Wavriniana) and Brasso-Cattleya Pluto var. pulchra, a nearly white form.

MESSRS. STUART LOW & CO., Bush Hill Park, Enfield, showed Cattleya Thurgoodiana (Hardyana × Luddemanniana), a very fine flower closely resembling C. Warszewiczii; also a pretty form of C. Dowiana with rose frecklings on the petals.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Rhoda var. *illuminata* (Hardyana × Iris) from Messrs. CHARLESWORTH & CO., Haywards Heath.—The most beautiful of the remarkable hybrids of this cross raised by Messrs. CHARLESWORTH & CO., and which have exhibited such extreme variation, one section partaking strongly of C. bicolor, derived through C. Iris, whilst those of the other type are of the form and size of C. Dowiana aurea inherited from C. Hardyana. The present flower is of the size and shape of C. Dowiana Rosita, the broad sepals and petals being a bright yellow colour tinged and veined with rose; the expanded and finely-crested front of the lip is coloured deep claret-crimson, the tube is orange with fine purple lines at the base.

AWARDS OF MERIT.

Trichopilia Lehmannii, from Sir TREVOR LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White).—A charming species of the Pilmua section, described by Dr. Regel and distinct from its ally T. fragrans (Pilmua fragrans, *Botanical Magazine*, t. 5035). The charming snow-white flowers, developed three or four on a spike, have the sepals and petals nearly equal, narrow and undulate, the large white labellum having an orange-coloured disc. The plant bore 13 flowers.

Sophro-Lælio-Cattleya Goodsonii (Sophro-Lælio *heatanensis* × Lælio-Cattleya *lunata*), from H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day).—A very brightly-coloured hybrid with flowers of good size, bronzy-rose on the backs of the sepals and petals and rose-purple with a yellowish shade on the surface, the elongated front of the lip being claret colour.

Gongora leucochila, from Messrs. CHARLESWORTH & CO., Haywards Heath.—A beautiful Gongora and one of the largest flowered. The large fleshy lip is pure white, differing from the original form figured in *Flore des Serres*, vol. 1, p. 87, in having a large chocolate blotch on each

side. The sepals are white inside and purple on the backs; the column and other segments are spotted with purple.

Fruit and Vegetable Committee.

President: J. Cheal, Esq. (in the Chair); and *Messrs.* O. Thomas, J. Davis, J. Willard, E. Beckett, A. Dean, G. Wythes, A. R. Allan, and H. Markham.

Messrs. BARR & SONS, King Street, Covent Garden, showed two fine Melons of the variety Mandie Castle, which received an Award of Merit when grown under trial at Wisley last year. Both the fruits were of good size, but they differed in appearance, one being yellow and very lightly netted, the other browner in tint, and heavily netted. The first-named was not good, but the second one was exceptionally delicious, the flesh thick, succulent, and of a greenish-white colour. The Committee agreed to recommend the Council to hold an extensive trial of Melons at Wisley next year.

The Superintendent showed from the Society's gardens at Wisley heavily-fruited plants of Tomatos, including the varieties Coronation (the seed having been sent by Mr. A. Michelson, Barnett Hill Gardens, Guildford). Early Crimson (from Mr. T. Hancock, Mansfield), and Smart's Finality (from Mr. A. J. Platten, Lowestoft). All were of the red, round-fruited type, and bore capital crops. At Wisley, grown in quantity with other standard varieties, these varieties did not exhibit exceptional merit.

KIRKCUDBRIGHT HORTICULTURAL.

AUGUST 1.—The annual show of the above society was held in the Town Hall, Kirkcudbright, on this date. There was a reduction in the number of entries from last year, but there was no appreciable falling off in the quality of the exhibits, save in those of cut flowers.

In the open class for pot plants Colonel GORDON, Threave (gr. Mr. J. Duff), was awarded the 1st prize, with a well-arranged exhibit of plants of admirable growth. Mr. W. BROWN, Shillinghill, an amateur cultivator, was the most successful exhibitor of pot plants in the other classes.

In the cut flower section Colonel GORDON was also highly successful, the bulk of the 1st prizes falling to the exhibits from Threave, but the *Misses* ANDERSON, Park House (gr. Mr. J. Walker), won the 1st prize in the class for herbaceous plants, and Mr. W. BROWN, Barhinnock, and Mr. W. W. MORRISON, with Mr. J. SCOTT, were also 1st prize winners.

A few of the best South of Scotland fruit growers exhibited, and, in consequence, this section was very good. Colonel GORDON, whose gardener, Mr. J. Duff, is a frequent prize-winner at leading Scottish shows, excelled in the classes for Grapes and in most of the other classes, although another successful exhibitor, Mr. B. RUTHERFORD, gardener to Major Maxwell of Glenlair, showed well also, and won several 1st prizes. In the vegetable department Colonel GORDON was again a successful exhibitor.

BISHOP'S WALTHAM HORTICULTURAL.

AUGUST 2.—The 37th annual show of this society was held in Swanmore Park by permission of W. H. MYERS, Esq., who by throwing open his pleasure gardens and grounds to the visitors contributed very considerably towards the success of the exhibition. Originally this society was started for the benefit of the cottage gardeners, and one of the chief classes was for the best cultivated garden. Latterly the society has done much to encourage exhibits of table decorations and other floral arrangements, offering substantial cash prizes. This year a marquee 80 feet by 30 feet was required to contain the exhibits in this department; as many as 27 tables were arranged in competition. Mr. E. MOLYNEUX is the hon. secretary, ably assisted by Miss F. M. MOLYNEUX and an efficient committee.

The leading class was for a decorated dinner table 6 feet by 3 feet, Orchids and Carnations excluded; £5, £3, and £2 were the prizes offered. Fourteen competed, making a fine display.

Mrs. ARTHUR BIDE, Highlands, Guildford Road, Farnham, was awarded the 1st prize for an arrangement of Lyon and Irish Elegance Roses

with suitable bronzy foliage all harmoniously blended. Miss GERTRUDE SAUNDERS, Creunphere, Fareham, was a very close 2nd with a similar arrangement of the same Roses. For an equal sized table decorated with Sweet Peas and any foliage there were nine entrants. Mr. F. G. BEALING, Bassett Nursery, Southampton, secured the premier place with orange and pink varieties, set off by small leaves of Caladium. 2nd, Miss HATTIE VOKES, Birch Lawn, Sholing, Southampton, with pink and heliotrope varieties. Miss ELSIE COLLINS, Swanmore, showed the best display of wild flowers.

In a class restricted to lady members, Mrs. PERN, with a pleasing arrangement of Fair Maid Carnations, tinted and green foliage, secured the premier position.

Exhibits of fruit were good in quality, although small in numbers. For four varieties, Mr. W. H. MYERS, Swanmore House (gr. Mr. P. Ellwood), won the 1st prize with a desirable collection; 2nd, Mrs. MACRAE, Meonstoke House (gr. Mr. H. Childs). T. WILSON, Esq., The Thickets, Bishop's Waltham (gr. Mr. G. Barnes), showed the best four dishes of fruits grown in the open, having handsome Peaches, Red Astrachan Apples, and Cherries. There was a keen competition in the vegetable classes, for prizes offered by Messrs. Sutton & Sons, Toogood & Sons, James Carter & Co., and Ed. Webb & Sons. Mr. W. H. MYERS won the 1st prizes in all four classes, followed by Mr. WILSON and Mrs. MACRAE.

WESTON HORTICULTURAL.

AUGUST 3.—The annual exhibition of the above society, held in Grove Park and the grounds of Glebe House on this date, proved a great success. Happily the weather, though extremely doubtful and threatening in the early morning, when indeed rain fell heavily, proved beautifully fine later. Last summer, after a lapse of some years, the show was resuscitated through the energy and initiative of a few local gentlemen.

The number of entries was larger than at last year's show, whilst the quality of the exhibits was on the whole very satisfactory. The number of classes was also increased from last year, thus introducing more variety.

Mr. C. J. ELLIS won Mr. C. A. Coggins' cup (offered in the local plant classes), for the second time in succession, and thus it becomes his property. Mr. H. CORNELIUS had a splendid group of Caladiums and specimen plants, and carried off one prize over the head of Mr. Cypher.

BLETCHLEY AND FENNY STRATFORD HORTICULTURAL.

AUGUST 7.—The second annual flower show of this and Fenny Stratford Horticultural Society was held in Bletchley Park (lent by Sir Herbert Leon) on Bank Holiday. The programme was carried out on the same lavish scale as last year's successful initial venture, and the visitors numbered considerably more than 10,000. Mr. T. Best capably fulfilled the duties of secretary.

BISHOP'S STORTFORD HORTICULTURAL.

AUGUST 7.—The 42nd annual exhibition of this old society was held this year on Bank Holiday instead of the second Wednesday in August. There was a large attendance of visitors, and there were some remarkably good exhibits. The class for a group of plants is always keenly contested, and for the past three years Lord HOWARD DE WALDEN, of Audley End, Saffron Walden (gr. Mr. J. Vert), has won the 1st prize, but this year Mr. Vert was 2nd to the Hon. MAURICE GLYN, Albury Hall, Herts. (gr. Mr. F. T. Bradley). Both exhibits contained remarkably fine plants, but the 1st prize collection was the more lightly and artistically displayed; the 3rd prize was won by Sir JOHN BARKER, Bart., The Grange, Bishop's Stortford (gr. Mr. Beech). In the class for six distinct foliage plants, Lord HOWARD DE WALDEN was placed 1st and Sir JOHN BARKER 2nd.

In the class for 24 bunches of hardy perennials, Messrs. GEORGE PAUL & SON, Cheshunt, excelled with a grand exhibit. The fruit classes were well contested, and fruit of excellent quality was forthcoming. The class for a decorated table of fruit, consisting of eight dishes, in eight dis-

tinct kinds, black and white Grapes to count as distinct kinds, provided an excellent competition. JOHN BALFOUR, Esq., Moor Hall, Harlow (gr. Mr. A. Jefferies), and Lord HOWARD DE WALDEN were awarded equal 1st prizes. The Grapes shown by Mr. BALFOUR were very fine, as also were his other dishes. Lord HOWARD DE WALDEN's collection was decorated with Orchids, and these were considered by the judges to be of superior value to the Carnations employed by Mr. Jefferies, so that the points allowed for the value of the flowers compensated Mr. Vert for those he lost in fruit; the award caused some dissatisfaction. The Hon. MAURICE GLYN (gr. Mr. Bradley) was 3rd; this exhibitor had an almost perfect bunch of Black Hamburg Grapes, weighing about 4½ lbs. and of very fine shape, the berries being intensely black. The Hon. MAURICE GLYN just managed to win the 1st prize in the class for two bunches of Black Hamburg with very fine Grapes. Mr. BALFOUR following closely with massive bunches and large berries, but hardly so black as in the 1st prize exhibit. In the class for two bunches of any other Black Grape, Mr. BALFOUR won the 1st prize with two fine bunches of Madresfield Court; 2nd, Mr. BRADLEY. Mr. BALFOUR also excelled in the class for two bunches of Muscat of Alexandria, having heavy bunches with large berries; 2nd, Mr. GOODWIN BARNES. The exhibits of vegetables were very fine. In the class for 12 distinct kinds there were six competitors, Mr. BALFOUR, as in former years, proved invincible, staging fine Celery, Tomatos, Runner Beans, Leeks (which were fine in size and well blanched), and very large Onions; 2nd, Mr. HARDING, Sele Grange, Hertford; 3rd, Mr. BATES, Sele Lodge, Hertford. There were 20 table decorations. Miss NELLIE VERT won the 1st prize, Mrs. E. GUILLE, of Newport, the 2nd, and Miss ELSIE VERT the 3rd. Mr. R. F. Felton, who judged the decorative classes, gave a demonstration on arranging flowers.

BASINGSTOKE HORTICULTURAL.

AUGUST 7.—The annual summer show of this society was held in Golding's Park on the above date. The entries were more numerous than in recent years, a distinct improvement being apparent in not only the number but the quality of the exhibits. The best group of miscellaneous plants arranged for effect in a semi-circle was shown by S. E. BATES, Esq., Manydown Park, Basingstoke (gr. Mr. W. Green). Plants of Codiaeums (Crotons), Palms, and Ferns, brightened by Orchids, Gloxinias, and other flowers, formed the main features. W. H. MCCONNELL, Esq., Baughurst, Basingstoke (gr. Mr. G. Wasse), was awarded the 2nd prize. The exhibits in a class for specimen plants in or out of bloom in nine varieties made a bold display down the centre of the large marquee. H. WELCH THORNTON, Esq., Beaupaire Park (gr. Mr. J. Keen), was placed 1st, his collection including fine plants of *Cycas revoluta*, *Stephanotis floribunda*, and *Allamanda Hendersonii*. 2nd, Mr. W. H. MCCONNELL. The best single-flowering plant was shown by J. LIDDELL, Esq., Sherfield Manor, Basingstoke (gr. Mr. Leamouth), in a grand specimen of *Ixora Duffii*. Tuberosus-rooted Begonias were of much better quality than usual at these exhibitions. For eight plants Mr. J. G. HOTT, Kingsclere (gr. Mr. F. Sweet), was placed 1st, the blossoms being numerous and fine. 2nd, Mr. L. DE L. SIMONDS, Audley Wood (gr. Mr. Dean). Coleuses were also shown grandly. Pyramidal-trained specimens 6 feet high and handsomely coloured were shown by Mr. BATES, who was awarded the 1st prize. Exotic Ferns exhibited luxuriant growth. Mr. H. WELCH THORNTON won in the class for six varieties with handsome specimens, *Nephrolepis elegantissima*, *Adiantum elegans*, and a handsome *Dicksonia* being noteworthy examples. Lilliums and table plants were best shown by Mr. LIDDELL.

CUT FLOWERS.

Roses were neither numerous nor good. Mr. L. DE L. SIMONDS won the 1st prize in the class for 12 varieties, distinct. He also had the best exhibit of 12 distinct herbaceous flowers in bunches. Collections of hardy flowers arranged to fill a table space of 6 feet run were very numerous. Mr. L. DE L. SIMONDS was again the most successful exhibitor, having such kinds as Phloxes, Lilliums, Roses and Carnations. 2nd, W. BUCKLEY, Esq., Moundsmeare (gr. Mr. G. Pettey).

Mr. R. LIDDELL secured the leading award for 12 bunches of cut flowers, distinct. *Ixora Duffii*, *Gloriosa superba*, *Liliums* and *Carnations* were all shown well. Sweet Peas were shown well considering the late season and the hot weather. The Hon. Mrs. F. BARING, Preston Candover (gr. Mr. A. Child), won the 1st prizes in two classes for a collection of six sorts each. This exhibitor also showed the best Cactus-flowered Dahlias and the best show Dahlias. Mr. LIDDELL was placed 1st for 12 varieties of *Carnations* in vases, making a pleasing display.

Fruit was shown excellently. For a collection of six kinds, Pineapples excluded, Mrs. LIDDELL was placed 1st with fine bunches of Madresfield Court and Muscat of Alexandria Grapes, good Peaches, Nectarines and Figs. Col. H. WALPOLE, Heckfield Place, Winchfield (gr. Mr. Gardner), followed closely. The best two bunches of Black Hamburgh Grapes were staged by Mr. W. H. MCCONNELL. Mr. L. DE L. SIMONDS was placed 2nd with larger but less shapely bunches.

In the any other Black Grape class both the 1st and 2nd prizes were awarded for Madresfield Court, Mr. BATES and Mr. LIDDELL winning in this order.

In the class for Muscat Grapes, Madresfield Court was again selected as the best variety; the exhibitor was Col. WALPOLE. 2nd, Mr. LIDDELL. Mr. BATES had the best scarlet-fleshed Melon in a handsome fruit of Sutton's Superlative. Mr. L. DE L. SIMONDS won the 1st prize in the class for a green-fleshed Melon with the variety Hero of Lockinge. Mrs. H. WELCH THORNTON excelled with Peaches, whilst Mr. LIDDELL showed the best Nectarines. The best dessert Apples were exhibited by Col. WALPOLE, while Mr. LIDDELL excelled in the class for a culinary variety. Lord CURZON, Hackwood Park (gr. Mr. West), was placed 1st for both Pears and Plums.

Vegetables are always a feature at this show. For a collection of eight kinds, Col. WALPOLE was placed 1st. In Messrs. Sutton & Sons' class for six varieties, Mrs. TREVOR GOFF, Sheffield (gr. Mr. H. E. Wallis), won the 1st prize with splendid produce. Mr. BECKLEY won the 1st prize in Messrs. Tregonwell & Sons' class for six kinds. Messrs. B. LADHAMS & Co., Shirley and Southampton, staged an attractive non-competitive exhibit of herbaceous flowers, such as *Gaillardias*, *Lilies*, *Coreopsis*, *Phlox*, *Pinks* and *Carnations*.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AUGUST 10.—Committee present: Rev. J. Crombholme (in the Chair); and Messrs. R. Ashworth, C. Parker, Z. A. Ward, J. Evans, W. Holmes, A. J. Keeling, F. K. Sander, and H. Arthur (secretary).

Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), staged a very fine group, for which a Silver Medal was awarded; the exhibit included several plants of *Cattleya Gaskelliana* alba, and a well-flowered specimen of the type, a good form of *Brasso-Cattleya Maronae*, *Cattleya Warszewiczii*, *Laelio-Cattleya callistoglossa*, *Cypripedium Maudei*, and several others.

Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), was also awarded a Silver Medal for an excellent group of *Cattleyas* and *Cypripediums*, including two good plants of *Cattleya Atalanta*, *Laelio-Cattleya callistoglossa*, a plant of *Cattleya Hardyana* × *Harrisonae*, bearing two well-formed, bright flowers, several plants of *Cattleya Harrisonae*, *Cypripedium* "Lord Derby," *C. Rothschildianum*, *C. Burtonii*, and *C. tixallense*.

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), staged an excellent group, for which a Silver Medal was awarded, *Miltonias* being a feature; *Cypripediums* were also good, *Odontoglossum crispum* × *xanthodes*, a very pretty *O. Harryanum*, and others; *Laelio-Cattleya Blecheyensis* and the *Ashlands* var. of *C. Gaskelliana* alba, for which an Award of Merit was granted, *Bollea Lalindei* var. *caelestis*, which also received an Award of Merit, and *Cypripedium Godfreyi leucocolumn* var. *Perfection*, which received the same distinction.

W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse), showed *Odontoglossum crispum* *Perfection* and *O. vexillarium superbum*.

Messrs. CHARLESWORTH & Co., Haywards Heath, staged choice plants of *Odontoglossum Aireworth* (*Lambeauianum* × *crispum*), a form

of *O. crispum*, with an exceptionally large flat lip; *Sophrone-Cattleya Marathon*, and *Cattleya Smilax*, of the *Charlesworthii* type.

Messrs. KEELING & SONS, Bradford, staged an excellent form of *Cattleya Harrisonae*, var. "Grand Duke," the flowers being of a good dark colour, and *Cattleya Vulcan*.

Mr. J. BIRCHENALL, Alderley Edge, showed several interesting plants, including *Stanhopea Rodigasiana*, *Bollea Lalindei*, *Angulosa Clowesii*, and a choice form of *Cypripedium bellatulum*.

AWARDS OF MERIT.

Cattleya Gaskelliana alba, *Ashlands* var., from R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), *Bollea Lalindei* var. *caelestis*, a flower of deep colour with bands of intense purple; *Cypripedium Godfreyi leucocolumn* var. *Perfection*, with ground colour of deep cream and regular markings, the petals being very broad, forming a good, round flower.

The next meeting will be held in the Coal Exchange, Manchester, on Thursday, September 14.

TAUNTON DEANE HORTICULTURAL AND FLORICULTURAL.

AUGUST 10.—The above society held its 44th annual exhibition in the beautiful grounds of Vivary Park on this date. There was a smaller attendance compared with last year on account of other attractions in the locality, but the weather and the exhibition itself left nothing to be desired. The number of groups was greatly in excess of last year. Whilst specimen plants were about the same in number, displays of fruit were especially good, and the decorative classes were well contested.

Messrs. J. CYPHER & Co., Cheltenham, were awarded the 1st prize for 12 stove and greenhouse plants in bloom, the 3rd prize being awarded to the Rev. P. B. LLOYD, Wellington.

Messrs. CYPHER were also placed 1st in the class for six foliage and variegated plants, and for a group of miscellaneous plants arranged for effect in a space of 130 square feet. This group was composed of a central arch crowned by a fine *Kenia* Palm, and flanked with brightly-coloured *Codiaeums*, whilst underneath were arranged *Alocasias*, *Liliums*, *Codiaeums*, a number of *Orchids*, and bright foliage plants. Mr. G. J. ELLIS, Weston Nursery, Weston-super-Mare, who closely followed, had a bright and tastefully arranged group. A fine specimen of *Ardisia lutescens* crowned the centre, and worked lightly in the group were brightly-coloured *Codiaeums*, *Amaranthuses*, *Eulalias*, and other graceful plants.

In the amateur classes the best group of plants was shown by Mr. H. CORNELIUS, Weston-super-Mare (gr. Mr. C. Cook).

Mrs. BERNARD, Bridgwater, was awarded the 1st prize for 12 stove and greenhouse plants; A. W. BROCK, Exeter, the 2nd; and B. C. SHEPPARD, Bridgwater, the 3rd.

Mr. H. CORNELIUS excelled in the class for six stove or greenhouse plants, whilst the best six table plants were shown by Sir W. H. DAVIES, Bristol.

For a collection of eight varieties of fruit H. ST. MAUR, Esq., Stover Park, Newton Abbot (gr. Mr. H. Richardson), was placed 1st; F. J. WINGFIELD DRYN, Esq., Sherborne Castle (gr. Mr. T. Turton), being 2nd, and G. A. GIBBS, Esq., Tyntesfield, Bristol (gr. Mr. Wilkinson), 3rd.

Mr. DICBY was awarded the 1st prize in the class for four dishes; 2nd, Mr. ST. MAUR.

Mr. J. WEBBER, Minehead, showed the best black Grapes.

In the class for a decorated table laid for dessert, for eight persons, Sir W. H. DAVIES, Bristol, was awarded the 1st prize; F. J. COLE, Bath, the 2nd; and C. J. ELLIS, Weston-super-Mare, the 3rd. There was much comment on the judges' decisions: in the opinion of many persons the 3rd prize table was the best.

For a collection of vegetables Mrs. BERNARD, Bridgwater, was 1st; the Earl of DEVON, Powderham Castle, Exeter (gr. Mr. Bolton), being placed 2nd.

In Messrs. J. Carter & Co.'s class for vegetables. Mr. B. C. SHEPPARD, Bridgwater, was

the only exhibitor, and this exhibitor won 1st prize in Messrs. Sutton & Sons, Messrs. Edward Webb & Sons, and Messrs. Robert Veitch & Son's classes.

Trade exhibits were not so numerous as in some former years. Messrs. ROBT. VEITCH & SON, Exeter, arranged a very attractive stand of Alpine and hardy herbaceous plants; Messrs. BLACKMORE & LANGDON, Bath, exhibited a superb collection of *Begonias*; Messrs. KELWAY & SON, Langport, showed *Gladioli* in great variety; Mr. VINCENT SLADE, Taunton, staged a fine collection of *Pelargoniums*; and Messrs. YOUNG & Co., Cheltenham, had a fine exhibit of *Carnations*.

ABERDEEN AND NORTHERN COUNTIES SWEET PEA.

AUGUST 11, 12.—The first exhibition of the above society was held on these dates, in beautiful weather, in the ball-room of the Music Hall Buildings, Aberdeen. There was a large number of entries. Sir Thomas Burnett, Bart., of Leys, Crathes Castle, performed the opening ceremony; Mr. M. H. Sinclair, Aberdeen, carried out the secretarial duties, the arrangements made being all that could be desired. The proceeds of the show were handed over to the Building Fund of the Aberdeen Royal Hospital for Sick Children.

In the class for 12 varieties with waved standards, the leading prize, a handsome silver Rose bowl, was awarded to Mrs. DUNBAR DUNBAR, Seapark, Forres (gr. Mr. John A. Grigor). The flowers were splendid and unquestionably the finest ever seen in Aberdeen. The best variety was Charles Foster, and there were also choice examples of *Edrom Beauty*, *Etta Dyke* (pure white), *Masterpiece* (lavender), *Earl Spencer*, *Unique*, and *Shrimp* (pink). 2nd, Sir THOMAS BURNETT, Bart., Leys, Crathes Castle (gr. Mr. John Petrie), for a very fine group, the outstanding specimens in which were *Etta Dyke*, *Evelyn Hemus*, *Elsie Herbert*, and *Paradise Ivory*. Mrs. DAVIDSON, Dess House, Aberdeenshire (gr. Mr. J. Ingram), was placed 3rd.

The best six vases of Sweet Peas with waved standards were also shown by Mrs. DUNBAR DUNBAR, Seapark. Clara Curtis, Mrs. W. J. Unwin, Asta Olin, Money-maker, Princess Victoria, and John Ingham were outstanding varieties. Mr. A. M. WILLIAMSON, Monbrodd House, Fordean, N.B. (gr. Mr. James Tullo), was a good 2nd.

In the class for three vases with waved standards, Mr. A. M. WILLIAMSON won both the 1st and 2nd prizes, his varieties including *Etta Dyke*, *Tennant Spencer*, and *King Edward* Spencer.

In the competition for three bunches of novelties of 1910 and 1911, Mrs. DUNBAR DUNBAR, of Seapark, worthily won the 1st prize. Thus this lady, with four entries, secured three 1st prizes and the leading prize of the show—the silver Rose bowl. Mr. ALEX. GRIGOR, Duff House, Banffshire, was placed 2nd; and Mr. A. M. WILLIAMSON 3rd.

The best bunch of lavender Sweet Peas was also shown by Mrs. DUNBAR DUNBAR, and she was closely followed by Mr. A. M. GORDON, Newton House, Inch, Aberdeenshire (gr. Mr. William Cameron), and Sir VICTOR MACKENZIE, Bart., Brackley House, Ballater, Aberdeenshire (gr. Mr. R. Gibson).

For one bunch of Sweet Peas, Mrs. DAVIDSON, Mr. A. M. WILLIAMSON, and Sir THOMAS BURNETT, Bart., were awarded the prizes in this order.

Mr. WILLIAMSON, Mrs. DUNBAR DUNBAR, and Sir VICTOR MACKENZIE were the most successful exhibitors in the class for Picotee-edged varieties of Sweet Peas.

Leading exhibitors in the amateurs' classes were:—Mr. R. M. WILLIAMSON, Rubislaw Den, Aberdeen; Mrs. EDWARDS, Buch Hill House, Aberdeen; Mr. JAMES MITCHELL, 3, Archedie Terrace, Banff; Mr. G. RHIND, 42, Gordon Street, Huntly; Mrs. MITCHELL, Shiuannachie, Ballater; Mrs. W. CORMACK, Dyce, Aberdeenshire; and Mr. Wood, 64, Hilton Place, Aberdeen.

The best dinner-table decoration of Sweet Peas, on a space 6 feet by 4 feet, set for six

persons, was arranged by Mrs. PORTER, Monaltrie, Ballater. An elegant silver epergne formed the centrepiece, and this was flanked with four small vases, all showing the choicest of blooms; the effect was charmingly beautiful. 2nd, Mrs. MILNE, 357, Hardgate, Aberdeen. Bowls of Sweet Peas formed a very fine feature, and called forth many hearty encomiums. Mrs. EDWARD, Restalrig, Culter, Aberdeenshire, carried off the 1st and 2nd prizes with superb entries.

NORTH OF ENGLAND HORTICULTURAL.

AUGUST 15.—The meeting of the North of England Horticultural Society, held at Harrogate, on this date, in conjunction with the show of the Harrogate Agricultural Society, proved a great success. The weather was delightful, and the tents were not excessively warm, owing to a cool north-east breeze. A deputation of the Royal Horticultural Society made grants of Cups and Medals to certain of the more important exhibits; the National Hardy Plant Society conferred Awards to hardy plants; and the Northern Society gave many Medals to exhibits and several Diplomas to novelties.

J. BRENNAND, Esq., Baldersby Park, Thirsk (gr. Mr. J. W. Hathaway), exhibited an exceptionally fine collection of fruit and vegetables, for which the Silver Cup offered by Lord Faversham and the Royal Horticultural Society's Silver Hogg Medal were awarded.

Silver Cups were awarded by the R.H.S. deputation as follows:—Silver-gilt Banksian Medals to Messrs. MANSELL & HATCHER, Rawdon, for Orchids; GIBSON & CO., Bedale, for herbaceous plants; DOBBIE & Co., Edinburgh, for choice Roses and Gladioli; BACKHOUSE & SON, York, for Apples and hardy herbaceous plants; and KELWAY & SON, Langport, for Gladioli. R.H.S. Bronze Flora Medals were awarded to Messrs. KEELING & SON, Bradford, for Orchids; DICKSON & ROBINSON, Manchester, for a collection of Phloxes and other border plants; A. H. RICE, Shipley, for Roses; and W. H. BONNALL, Harrogate, for Carnations and greenhouse plants. R.H.S. Banksian Medals were awarded to Messrs. JARMAN, Ripon, for Sweet Peas and Dahlias. A Silver Knightian Medal was awarded to W. W. CLIFFE, Esq., Leeds (gr. Mr. W. Hague), for a small but excellent exhibit of well-grown fruits. Silver Flora Medals were awarded to Messrs. E. T. LOW, Haywards Heath, for Orchids; W. LAWRENCE, Yarm-on-Tees, for Carnations and Phloxes; C. T. WATERS, Balcombe, for Carnations; R. P. KER & SONS, Liverpool, for stove and greenhouse plants; T. G. BELL, Whitley Bay, for Sweet Peas and Violas; and W. & J. BROWN, Peterborough, for Roses. Silver Banksian Medals were awarded to Messrs. S. BAILY, Knaresborough, for Sweet Peas; YOUNG & CO., Cheltenham, for Carnations; W. CONWAY & SONS, for hardy flowers; MACK & MILN, Darlington, for Roses and herbaceous flowers; A. J. HALL, for Coleuses and Fuchsias; and MAWSON BROS., Windermere, for hardy herbaceous flowers. A Cultural Commendation was awarded to W. S. HANNAN, Esq., for fine fruits of Peaches; and a Certificate of Appreciation to the BRITISH BOTANICAL ASSOCIATION for an educational exhibit.

The delegates of the National Hardy Plant Society made the following Awards:—Silver-gilt Coronation Medal and a Gold Medal offered for a circular bed of hardy plants, to demonstrate their value for bedding, to Messrs. G. GIBSON & CO., Bedale. The bed comprised a groundwork of Phloxes, with Hyacinthus candicans as dot plants, and an edging of Nepeta musina.

The North of England Horticultural Society made the following Awards to novelties:—First-class Diplomas to Gladioli Langport Blue and Golden Measure, both shown by Messrs. KELWAY & SON; Gladiolus La Triomphe, shown by Messrs. R. HARKNESS & CO., Bedale; and Rudbeckia purpurea Gibson's variety, shown by Messrs. G. GIBSON & CO., Bedale.

Second-class Diplomas to Gladioli Miss Wilkinson and Brooklands, both shown by Messrs. KELWAY & SON; Verbascum Caledonia, shown by Messrs. G. GIBSON & CO.; a seedling Melon, shown by J. BRENNAND, Esq.; a seedling Tomato, shown by Messrs. E. BATCHELOR; Catleya Atalanta superba and Cologney asperata, these two Orchids shown by Messrs. MANSELL & HATCHER.

Obituary.

JEREMIAH GALBRAITH.—Jeremiah Galbraith, for more than 50 years a landscape gardener of New Rochelle, New York, U.S.A., died on July 23, at his home, 15, Cedar Street. Deceased, who was 76 years of age, emigrated to America from Ireland when he was 26 years old. *Florists' Exchange.*

ENQUIRY.

ALBINISM IN SWEET PEAS.—We have had from various parts of the country and from India from time to time reports from customers that the flowers of their Sweet Peas of whatever variety are in their gardens always white. We have one example in this neighbourhood so remarkable that the garden is called the "white garden," but so far as our memory goes this is only applied to Sweet Peas. Have any readers heard of such cases? *R. St. Albans.*

ANSWERS TO CORRESPONDENTS.

CULTIVATION OF YAMS: *G. G.* Of the large number of Yams in cultivation in the tropics, the best are *Dioscorea alata* and *D. sativa* and their numerous varieties. The former is known as the winged-stalked Yam; its tubers are often several feet long and as much as 60 lbs. to 80 lbs. in weight. *D. sativa* is the common Yam of the tropics, and being of easier culture than the preceding, also much more readily propagated from the stem tubers, which are produced in numbers along the upper parts of the stems, is the more suitable for your purpose. The tubers of both species are excellent either roasted or boiled. Being natives of the tropics, they require a warm, sunny house for their cultivation. The other plant you mention is the Chinese Yam, *D. batatas*, a native of China and Japan, in which countries it is largely grown. It differs from the other species mentioned in having a tapering black root, as large as a Parsnip. The plant is quite hardy in this country, and has been tried as a substitute for the Potato, but in edible properties it is inferior to that vegetable.

EMPLOYMENT AT KEW GARDENS: *C. P. F. K.* See answer to *H. H.* in issue for August 12, p. 120. The address of the John Innes Institution is Merton, Surrey.

NAMES OF PLANTS: *H. M.* 1. *Eupatorium Wiennmannianum*; 2, *Diplacis glutinosus*; 3, *Origanum hybridum*; 4, *Isoloma hirsuta*; 5, *Rhamnus catharticus*; 6, *Chimonanthus fragrans*; 7, *Geranium sanguineum*; 8, *Buphthalmum speciosum*; 9, *Linaria cymbalaria*; 10, *Achillea pyrenaica*; 11, *A. millefolium roseum*; 12, *Saponaria officinalis* fl. pl.—*R. T.* 1, *Selaginella Widenovii*; 2, *Blechnum corcovadaense*; 3, *Pteris granifolia*; 4, *Adiantum hispidulum*.—*A. M. S.* *Dendrobium chrysanthum*.—*T. V.* The *Cypripedium* is evidently a cross between *C. Rothschildianum* and *C. Charlesworthii*.—*T. B. R.* 1, Apparently *Carnation*; 2, probably a seedling fancy *Carnation*, but of no value; 3, a fancy red-flake *Carnation*, probably a seedling; 4, a seedling rose self; 5 and 6 are crimson selfs, not good enough to name.

PEACHES: *F. H.* The Peaches decayed at their centres have been received and examined, and, as we suspected, there is no fungus present. The trouble is probably due to an excess of moisture at the roots.

PEAR LEAVES FOR EXAMINATION: *O. S. R.* The Pear leaves have been very severely attacked by the larvae of the Pear-leaf Blister Moth, *Cemistoma scitella*. It is too late to apply remedial measures this season. Spray the leaves another season during April with arsenate of lead paste, making the spray as fine as possible.

RAISING NYPHAEAS FROM SEED: *E. H. W.* The present season should prove a most propitious one for securing seeds of almost all *Nymphaeas*. First, select the most promising seed vessels, but allow them to remain on the plants for the present. Mark them by means of a stick, or better, with two

sticks, one on either side of the stem, but do not tie the seed pod to the sticks, these merely keep it in position and indicate its location. Two seed pods are sufficient for one plant to mature considering that it is still flowering. Remove all other seed pods as they form. Watch closely for the bursting of the capsules, which will soon take place. When this occurs the seeds float for about 24 hours, then sink and settle upon the muddy surface; where, if the conditions are favourable, they will germinate. It is better, however, to skim off the seeds whilst they are floating. These, when collected, should be sown at once in shallow pans in mud with a slight covering of water. Place the pans in a temperate house and keep them there until the seedlings appear. Then thin them out, when large enough, a few at a time, and prick these off into another pan in about 2 inches of mud: not stale mud that smells, but such as is obtained by using loam and clay. When the seeds are left to themselves they usually float to the sides of a pond or tank and can easily be secured. If the water be quite shallow at the margin this will be a congenial place for the seed to germinate in a natural manner, and in such places the seedlings should be looked for next season. There is, of course, the possibility of loss from water slugs or snails, which are apt to destroy the plants. Seedling *Nymphaeas* will flower in twelve months if they are attended to carefully.

SEEDLING CARNATION: *J. Dunlop.* There is no other similar *Carnation* on the market. You are at liberty to give it any name you like; the colour is distinct and good, but the calyxes burst badly, and the variety would be unlikely to procure a certificate from any *Carnation* or floral society.

SIBTHORPIA ODORATA: *H. R. Holland.* This name has not been recorded in any standard work, nor can any plant of this name be traced. There are three species of *Sibthorpia* in cultivation: *S. europaea*, *S. peregrina*, and *S. africana*. Only the first-named is hardy; the others need the protection of a frame from which frost may be excluded during the winter. Probably the plant you have named *S. odorata* belongs to one of these three species. Send us a specimen of the plant for identification.

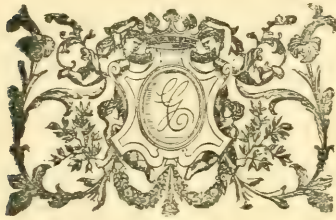
SWEET PEAS: *J. M. B. Crawley.* There is no specific disease or insect pest in the Sweet Pea stems. The trouble is probably a "physiological" one, such as frequently occurs in this plant. It is possible, however, that the cause of the yellowing is a disease of the root; send us, if possible, the whole of the root of an affected plant.

TOMATOES CRACKING: *A. M., Londonderry.* The cracking and "rot" of the Tomato sent is not due primarily to any fungous disease. The bursting of the skin is probably caused by over feeding the plant; various "moulds," chiefly *Penicillium glaucum*, have attacked the fruits after they have cracked.

TRIPLE-PODDED PEAS: *W. G. H.* The photograph of a triple-podded Pea which has appeared amongst a special stock of a new first early variety is interesting. Many years ago Messrs. Vilmoren, of Paris, offered a triple-podded sickle Pea. Efforts were made to improve it by selection and crossing by Mr. Hugh Dickson, of Newtownards, and others. Messrs. Hurst & Son are still working at it, and have now a number of selections, some giving pods as large as Alderman. The trouble is to obtain a stock which will produce three pods persistently.

TWELVE ROSES FOR POT CULTURE: *E. T.* The following twelve varieties of Roses may be recommended for pot culture, and their blooms will provide a wide range of colour:—*Niphetos*, Richmond, Liberty, Mrs. Aaron Ward, Catherine Mermet, Bridemaid, Perle des Jardins, Lady Hillingdon, Sunrise, Sunset, White Killarney, and Kaiserin A. Victoria. These are all largely grown. You can procure them in pots from any Rose grower.

Communications Received.—F. Anderson (thanks for donation of 2s. 6d. for E.G.O.F. box). W. H. W. J. C. Chilton. A. C. B. J. B. D. South Africa. D. R. W. W. D. H. R. D. C. H. H. J. G. W. R. D. E. F. A. W. B. H. C. T. A. D. R. W. W. H. V. I. D. A. D. G. H. O. W. B. T. H. W. P. C. T. L. C. R. H. R., Holland. J. S. W. S. J. McC. C. M. S. T. V.



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THE PRUNING OF RAMBLING ROSES.

IT is now time to begin the pruning of Rambling Roses, that is to say, the varieties belonging to the Multiflora group, and the Wichuraianas. This pruning can be proceeded with during the autumn, and even down to the end of January, but any pruning which is done later than January may cause serious damage to the buds.

It is well to begin with the Multiflora group—Crimson Rambler, Blush Rambler and other similar Roses which I shall mention later on—because these varieties do not flower again the same season, whereas many of the Wichuraiana group do give us a few intermittent flowers in the autumn, and in a year like the present we may expect a full share of these occasional flowers.

These two groups of Roses are alike in one particular; their summer flowers are produced on short, lateral growths from the strong shoots of the previous summer. These strong shoots which are to carry the flowering laterals in the succeeding season are either thrown up from the base or produced from the old stems of the previous summer, in which case (to make use of the convenient description introduced, I think, by Dr. A. H. Williams) they are called "continuing laterals" to

distinguish them from the numerous, short-flowering laterals, which are of no further use.

The Multiflora group differs from the Wichuraianas in having thicker stems of more upright growth, the natural tendency of the Wichuraiana Rose being to push out its basal shoots, creeping along the ground in all directions. These creeping stems, if left to themselves, would doubtless make roots and form fresh plants, so that in no great length of time a large area would be carpeted with the low growth of the Rose. In ordinary gardens this could not be permitted, and the creeping growths have to be trained up or outwards, according to the purpose for which the Rose is grown, and from the extreme suppleness of the growths training may be carried out to any extent in any desired direction. The stiffer growth of the Multiflora Rose does not permit this treatment to the same extent, and an attempt to bend it down or wind it round a pillar, often a convenient way of treating a Wichuraiana Rose, would frequently result in breakage of the shoot. The natural growth of the Multiflora Rose, left to its own devices, would be to form a tall, arching bush, gradually becoming a dense thicket, from which every year the strong basal shoots and continuing laterals would be pushed upwards, bending down with the weight of blossom of another summer; these in their turn would be overtopped by the strong young shoots of a new season's growth.

From the gardener's point of view there is another distinction between the Multiflora and Wichuraiana groups, and that is that in the Multifloras the old wood that has produced laterals and flowered is practically useless for garden purposes again, except as a carrier for strong continuing laterals. This is not quite the case with the Wichuraianas, for though with them also the best-formed and longest-stemmed flowers will be produced from the young wood, yet the old wood may, if required to fill a gap, be retained, merely cutting back the laterals to a few eyes, which will produce new laterals to give flowers in the succeeding summer; this plan is not, however, to be recommended if it can be avoided, as the flowers will not be so fine, nor will they be carried on such long stems as those from the strong, young growths. This, however, is quite distinct from the retention of old wood on either Multiflora or Wichuraianas, merely as a carrier for continuing laterals, a process which is often convenient.

Commencing then with the Multiflora Roses, the first operation is to take down the plant from the arch or pergola on which it is growing and lay it out, carefully preserving all the young basal shoots. If the Rose is grown as a pillar, and a fair amount of basal shoots have started, the rest of the plant may be cut away, leaving these to grow. When this course is adopted no apprehension need be felt that the base will be flowerless, for these young shoots will flower readily to the ground, but later on, if desired and the shoots are many, some

may be headed down to different heights so as to increase the furniture of the base of the plant.

If, however, the Rose is grown on a pergola or high wall or screen, the basal shoots may not be tall enough to cover or reach to some parts which the Rose is expected to cover; or it may be the number of basal shoots produced have been insufficient to furnish the plant, in any of these cases we must call in the assistance of the continuing laterals.

Select then as many of these as are considered to be necessary and cut off all the parts of the old stem above the starting point of the young lateral to be retained, also trim off everything not wanted below this lateral, bearing in mind that the old stem has done its work as a flowering subject and remains merely as a carrier for the young lateral.

When the pruning is done in August or early in September, it must be remembered that the shoots will continue to grow for some months, and no doubt by delaying pruning until autumn or early winter it is easier to see exactly what there is to deal with, and the growths may be tied exactly into the positions they are to occupy next summer, but the early pruning has in its favour that the young growths get more thoroughly ripened, and should any of them have proved too vigorous and to have grown beyond the limit assigned to them, their tops can readily be reduced at a later period when growth is ceasing.

The Roses to be treated, as included in the Multiflora group for pruning purposes, are the true Ramblers, Aglaia, Ariel, Blush Rambler, Crimson Rambler, Evangeline, Excelsa, Flora, Hélène, Laure Davoust, Leuchtstern, Psyche, Philadelphia Rambler, Tausendschön, and, in addition to these, Tea Rambler, which really belongs to the same class, though sometimes called a Tea, and the Hybrid Musk Roses, The Garland and Mme. D'Arblay.

Turning now to the Wichuraianas, there are four classes for pruning purposes:—(1) Roses of the Dorothy Perkins type which produce a quantity of basal shoots, and also continuing laterals like the Multifloras; (2) Alberic Barbier and similar Roses, producing few basal shoots but plenty of new growth on continuing laterals; (3) Roses making strong upright growth like Gerbe Rose; (4) Messrs. Paul & Son's new race of Wichuraiana Teas.

(1) The first group includes Dorothy Perkins and its sports Minnehaha, Lady Godiva and White Dorothy, also Lady Gay, Paul Transon, François Juranville, and the majority of the hybrid Wichuraianas, and, without entering into the controversy whether Hiawatha is or is not a Wichuraiana, certainly for pruning purposes it should be regarded as belonging to this group and class.

The method of pruning will follow generally that system recommended for the Multifloras with this exception, viz., that it will not be taken in hand until hope of autumn flowers has been abandoned, and, if it be thought necessary, a few of the old stems may be kept for flowering purposes. This latter plan, however, should

not be adopted where the growth has been weakly. With weakly plants it is, I think, best to cut the old wood out altogether, relying entirely on young growths, and this should be done early in autumn, so as to allow full time for ripening the new growth.

(2) The second class includes Albéric Barbier, Gardénia, François Foucard, Elisa Robichon, Jersey Beauty, and a few other varieties. Here the basal shoots are not as a rule numerous, and continuing laterals must perforce be relied upon. Much thinning out of old wood will be required, and, as a rule, the old wood above the starting point of the continuing laterals should be cut away, but the absolute removal of all wood that has flowered is not so imperative as in the Dorothy Perkins class.

I have found that there is no great difficulty when it is considered desirable to induce this class to act exactly like the Dorothy Perkins or basal shoot-making class. The process is, when pruning in autumn, merely to tie the growths up temporarily, and in the early spring, before growth commences, take them down carefully and peg them down flat for a time until growth is in full swing, then tie up carefully again, and in the summer a number of basal shoots will be found wherewith to renew the life of the tree.

(3) Of the sturdy, upright-growing Wichuraianas two only are known to me, Gerbe Rose and Diabolo. Gerbe Rose always has a few autumn flowers, and I generally wait till these are over and then cut out the old growths, leaving the beautiful, shiny foliage of the young growths to ripen. Though I prefer to prune this class in the autumn, I think that there is in this case no special reason, as there is in the case of the climbing varieties, why the pruning should not be deferred till spring if desired.

(4) Of the dwarf Wichuraiana Teas I need say little. They seem rather tender, and so I have deferred pruning till April. Little is required beyond shortening the tips and cutting out frost-damaged wood. *White Rose*.

PLANT NOTE.

IMPATIENS ROYLEI.

THIS Himalayan Balsam is a very accommodating plant. I have seen it growing strong in the swampy sides of a wooded stream, whence it had escaped from a cottage garden and become naturalised. In these conditions of ample moisture and a rich soil the shoots were succulent, and so brittle that a sudden puff of wind would break them. Here the plants had become drawn up 6, or more, feet high, but, as always, the race was to the strong, and although quantities of self-sown seed germinated every spring yet the crowd of seedlings soon resolved itself into groups of branched plants with plenty of flowers. Recently, I have seen plants 5 feet high, and full of flower, growing amongst tall shrubs on a bank which only receives water when rains fall. It would be difficult to find conditions more opposite, and yet in each case the plant thrives and flowers freely. It is such instances as this which makes one pause before dogmatically stating that certain conditions are essential to the welfare of particular plants. *A. C. Bartlett.*

WOOD HALL, SYDENHAM.

SYDENHAM Hill is one of the few remaining spots of greenery in the densely-populated district of south-east London. Dulwich, Streatham, Norwood, Anerley, Penge, and Forest Hill surround it, but, thanks to the charitable intentions of Edward Alleyn, an Elizabethan actor and "chief master over games of beares, bulls and mastive dogs" to King James I., who founded Dulwich College, which nestles at the foot of the hill, Sydenham Hill itself still retains a large part of its original woodland. On an edge of the wood, in one of the most-favoured sites, lies Wood Hall, the residence of J. C. Eno, Esq. Mr. R. B. Leech, who has been gardener at Wood Hall for a period of 27 years and to whose initiative the garden owes its principal features, modestly declares that the attraction of the garden lies not in what it has but in what it overlooks. It would be idle to deny the value of the magnificent prospect from the terrace—which is 350 feet above sea-level and only 5½ miles from Charing Cross—over the whole of London and into Essex, Middlesex, Buckinghamshire, and, in clear

The garden is situated on the London clay, and contains many examples of plants that may be cultivated in this unpromising medium. Funkias, Polygonatum, and the double-flowered variety of *Gypsophila paniculata* revel in the heavy soil, whilst Roses and Pæonies (see fig. 65) succeed especially well. Very few conifers have been planted, for the district is visited by dense fogs, which are so harmful to most evergreens. There is a good specimen of the deciduous Cypress (*Taxodium distichum*), but for shelter the garden relies on the natural woodland and banks of Rhododendrons. Japanese Maples and Bamboos both succeed well, the collection of the latter including a beautiful plant of *Arundinaria nitida*. Buddleias also grow well in this garden, the vigour of the annual growths and inflorescences being increased by pruning the plants to the ground level each year. Carnations are planted out annually in considerable numbers, but with the exception of one home-raised, seedling border variety, which combines the merits of good scent, fine calyx, a free-flowering habit and brilliant scarlet flower, only the perpetual-flowering varieties are now employed. A bed of Carnation



(Photograph by John Gregory.)

FIG. 65.—RHODODENDRONS IN FLOWER AT WOOD HALL, SYDENHAM.

weather, Berkshire. But the garden itself is full of interest. A few summer-bedding plants, such as *Celosias*, *Calceolarias*, and *Begonias*, brighten the borders in summer, but in principle the bedding-out system has been abandoned and broader effects are aimed at by the informal arrangement of hardy subjects and by wild gardening with bulbs, Ferns, and Rhododendrons at the fringe of the wood. The most recent improvement is a partial clearance of Oak to allow sufficient light to reach a group of Himalayan Rhododendrons and the development of a small valley where moisture settles, forming a suitable home for species of *Primula*. The Rhododendrons seen in fig. 65 are specimens of *R. Broughtoni*. There is no peat in the soil, and Mr. Leech is of the opinion that good loam, with an admixture of leaf-mould and well-rotted manure, is a better rooting medium for Rhododendrons than peat. The plants are in excellent health in spite of the unprecedented drought of the present season, and a bed of *R. arboreum* *Wellianum* gives particular promise of producing a fine display next spring.

Enchantress, edged with *Verbena* Miss Willmott, may be expected to furnish a beautiful display of flowers until the arrival of autumn frosts. Near the dwelling-house are unusually fine specimens of *Wistaria multijuga* and its variety *alba*, which flower annually with extraordinary profusion, and this year have set a quantity of seed. A plant of *Actinidia chinensis* against an arch in a wall is growing with greater vigour than any of the hardy vines, making annual growths 12 feet in length and an inch in diameter. Cuttings of this plant root readily in spring.

The kitchen garden and glasshouses are arranged compactly in a sheltered corner to the south-west of the grounds, and they have a southern aspect. Trenching and manuring annually have made the ground amenable enough now, but for many years Mr. Leech found it impossible to transplant Asparagus successfully. The crops of Pears and Plums are failures this year, and Apples are giving only a moderate crop. Currant bushes in this garden are quite free from "big bud," and Mr. Leech relates an interesting experience in this connection. For many years

the bushes were badly infested with the mite, but it was noticed that in a batch of two dozen purchased plants of Boskoop Giant one bush remained immune, although all the others were attacked. Propagation from this particular plant has produced a race of plants which has superseded all the other varieties cultivated in the garden, and continues to remain immune from attack.

With the exception of a fine tree of Nectarine Milton, which annually produces a fine crop of fruit with never failing regularity, the Peaches and Nectarines are trained as fans at right angles to the pathway. Although the increased light admitted by this system is welcomed and utilized to grow a few miscellaneous plants, it is thought that the Peaches do not colour and

moister atmosphere, they are, nevertheless, superior in flavour, colour and keeping qualities, the bunches lasting till well into May. There is a standing reward of twenty shillings for the first mealy bug discovered in the vineries. The roots of the vines are out-of-doors, except in the case of the early-fruited varieties.

Collections of Cattleyas, Odontoglossums, Cypripediums, and Dendrobiums are grown, and there are some especially good Thunias, but at the time of my visit few Orchids were in flower. Dendrobium Wardianum is found to do best in the Peach house, strong and well ripened growths being thus obtained. The small stove contains a fine climber in each of the three sections; these are *Combretum purpureum*, *Allemanda grandiflora*, and *Dipladenia amabilis*. The *Dipladenia*

feet are produced on plants in 24-size pots. The variety has been named *pendula*, but it does not come true from seed. Other interesting plants are a very compact form of *Grevillea robusta*, and a collection of *Lapageria* seedlings. *Ceropegia Woodii* is a favourite. Of *Begonias*, Miss Alice Manners, though an old variety, is still found the best for growing in hanging baskets. *Schizanthuses* are a feature in the conservatory in their season (see figs. 66 and 69). The specimen shown measured nearly 4 feet in diameter. The seeds were sown early in September, and the seedlings pricked out into small pots and repotted according to their needs until, about the middle of February, they were ready for planting in the hanging baskets. They were grown in cool conditions throughout the winter. E. J. W.



FIG. 66.—SCHIZANTHUS CULTIVATED AS A BASKET-PLANT AT WOOD HALL, SYDENHAM.

finish so well as those grown under the more popular system.

The vineries also are of special interest as examples of an unusual method of culture. Mr. Leech endeavours to imitate in his houses the climate in which the vine flourishes best out of doors. He allows a maximum of sunlight and air and never damps the interior of the vineries nor applies moisture with the syringe. A much greater demand is thus made on the root system to meet the increased transpiration of moisture by the leaves and an increased quantity of dissolved food materials and salts is thus carried into the plant. It is claimed that the plants are healthier than most vines, and that, if the Grapes are not so large as those grown in a

fills one side of a 12-foot house and it presented a wonderful sight. It continues in flower throughout the summer, and at one time more than 100 of the large, rose and pink-coloured flowers are expanded together. The houses also contain collections of seedlings of *Anthurium Scherzerianum*, and of the newer types of *Neprolepis*. As a basket plant, however, *N. Fosteri*, with pendulous fronds 5 feet long, remains a favourite.

Perhaps the most valued plant under glass is a remarkable seedling from *Asparagus Sprengeri*, which, planted out in a border, has growths which reach the roof and hang down again in long streamers. One of these growths has measured 26 feet in length, and growths of 7 and 8

NOTICES OF BOOKS.

THE GLADIOLUS.*

GLADIOLUS culture in America has reached an importance which it has not yet assumed in Britain. Hundreds of acres of land are employed in the culture of the flower for market purposes and for the production of corms for home and export trade. The present book is written from the standpoint of the commercial grower, but many of the instructions given are of use to the smallest cultivator.

Two writers are responsible for the text, the major portion being from the pen of Mr. Matthew Crawford, whilst an appendix of some 30 pages is written by Dr. W. Van Fleet. Both writers deal with the history of the plant—an unnecessary duplication. Dr. Fleet's treatment of the subject is the more thorough.

April and May are the months recommended for planting. The soil is to be well cultivated in the autumn, and whatever fresh manure is used must be applied then, a very wise recommendation. As to artificial manure, Mr. Crawford has found most satisfactory results with a good Potato fertiliser, containing plenty of phosphates. He remarks, "the Gladiolus is a sturdy grower, able to assimilate a generous supply of nutriment, and should be properly fed."

Planting the corms 6 inches deep is recommended, both in field and garden, to prevent the plants blowing over when in bloom. In addition to this deep planting, ridging up the rows is also recommended as the plants are coming into bloom. It would be interesting to see this practised; probably it could only be carried out successfully in very free, loamy soil. Chapters are devoted to "Digging and Curing," "Cleaning and Grading," "Growing for Specific Purposes," and other valuable and interesting phases of Gladiolus culture. The cutting and shipping of the flowers to market is a most important part of the work in America, where the distances they have to travel are often very great. Mr. Crawford tells of a consignment arriving satisfactorily after a journey of 2,000 miles!

The chapters on propagation are excellent—raising plants from seed and bulblets. Success with the Gladiolus, we are told, "depends more upon the use and management of the bulblets than upon any other thing."

Bulblets grow from the base of the bulbs, are usually attached by stems, and have hard shells—too hard, sometimes, for the young sprout to get through. Some varieties produce bulblets very sparingly; others again develop them in great abundance.

Dr. Van Fleet contributes a valuable chapter on hybridisation. Altogether the work is of first-class importance, and a copy should be on every florist's bookshelf. It contains a number of good illustrations, all the more valuable because they are not in the least overdone. C.

* A practical treatise on culture, with notes on history, storage, disease, &c. (Chicago: Vaughan's Seed Stores.)

TREE PRUNING IN THE MALL.*

ADVERSE criticisms have been forthcoming from time to time respecting the manner in which the trees in the Mall (London) have been pruned. The Government requested Professor Balfour, Regius Keeper of the Royal Botanic Garden, Edinburgh, to furnish a report upon the treatment the trees have received. As this broad avenue forms the main approach to the nation's monument to Queen Victoria, the treatment of the trees has a national interest. It will be noted that Professor Balfour not only approves the treatment the trees have received at the hands of those responsible for the management of the Royal Parks, but he describes the specimens as patterns of what street trees should be. The following is the text of the report:—

I have examined the young trees in the Mall.

I wish to say at once that I find nothing to warrant adverse criticism of the pruning of them, or of the result that has been obtained by it. On the contrary, I have been impressed by the evidence of the application of sound, practical knowledge, combined with scientific principle, in the pruning of the trees in relation to their environmental conditions. That four unbroken lines of shapely, symmetric, healthy trees of the size they have now attained have been established in the Mall, is a tribute to the skill with which they have been handled.

I cannot subscribe to the criticism that the trees have been over-pruned. I see no immediate evidence of over-pruning in the present condition of the trees nor suggestion of it in their promise for the future. Every tree I examined was in robust health, bearing a profusion of young twigs covered with plump, bursting buds, and the leafage which will shortly clothe the trees will, I do not doubt, tell its tale in confirmation of the vigour of the trees.

The Plane tree in youth naturally develops an exuberance of primary lateral branches on its stem, and there is a contest for leadership amongst them at the top. No one of these branches continues its growth by a terminal bud—a feature of other trees also—Lime, Elm, for instance. Arrest and self-pruning of the tip takes place, and the elongation of the shoots proceeds from lateral buds nearer to, or further from, the primary tip. The continuation bud may be the one immediately behind the point of abscission of the shoot tip, but often the shoot dies back to some distance behind the normal abscission line of self-pruning, and thus the elongation of a shoot in any one season is no measure of the permanent addition in length that is to be made to the axis, whether terminal or lateral, of which it is a part, for only the base of the annual growth may survive. If the tree grows freely without natural or artificial curtailment and discipline a relatively heavy brushhead is formed of intricate zig-zag branches of which the terminations may—many of them—be dead. In consequence:—

1. The surface exposed to air currents is large, and by so much increases the risk of overturn and of damage by rending in open situations.
2. Many of the primary branches do not survive in whole or in part the struggle for air and light with their fellows, and become, therefore, an encumbrance through their interference with the development and leafage of the branches that are ultimately successful, and they may be even a danger to the tree as starting points for disease.
3. The upward growth of the whole tree is retarded through the demand made by the surplusage of lower branches, and there is apt to be forking and division of the main trunk.

In rich soil these features are naturally exaggerated, and along with this goes this

* Report by Professor I. Bayley Balfour, F.R.S., Regius Keeper of the Royal Botanic Garden, Edinburgh, on Tree Pruning, presented to both Houses of Parliament by Command of His Majesty.

further character, that the wood which is formed is less resistant to lateral strain, and is, therefore, more liable to damage by breaking.

The art of pruning takes into account all these characters in each individual tree in relation to the conditions both below ground and above ground in which it grows, and I say without qualification that the trees in the Mall are a

- (b) Planted as isolated specimens in line to form an avenue the trees are individually exposed in this wide thoroughfare to the full force of gusty, dust-laden winds that sweep down it.

In my opinion the discipline to which the trees have been subjected in the circumstances



FIG. 67.—PLANE TREE AS GROWING IN THE MALL.

picture of the correct art of pruning in relation to environment.

The chief factors in the situation in the Mall which demand consideration in connection with the pruning are these:—

- (a) The trees are growing in rich soil. When planted they were well cared for. I saw the planting of several of them, and know, therefore, that the soil conditions are such as to promote vigorous growth with all its advantages and disadvantages.

of their growth has been admirably adjusted to this environment:—

1. The excess of lateral branches has been properly diminished, and the head of the tree has, therefore, been adequately lightened in relation to wind currents, so that risk of upset of the whole tree, and of breaking of branches has been lessened.
2. There is practically no dead wood on the trees to interfere with the development of

healthy branches, or to serve as a seat of infection of disease.

3. The branches which remain have been selected with judgment so as to form a right framework for the future extension of the crown of the tree and their lateral extension has been checked judiciously, so that they have been stimulated to produce quantities of well-placed, leafy shoots which, by their distribution, more than make up for the struggling feeble shoots lost by the removal of the surplus primary lateral branches and the trimming of weak branchlets. No feature of the pruning struck me so forcibly as this one. The checking of these laterals has been most skilfully performed through careful continuous tending of the trees; there has been no vicarious heroic lopping of the kind which frequently passes for pruning. There is no mark of mutilation on the branches; the development of feathery twigs is wonderfully perfect, and an ample

interest of all others. Shoot pruning does not kill roots. The disastrous results that follow over-pruning and, no less, bad pruning of trees arise not from death of roots, but from the deficiency of "branches d'appel"—in our less flexible language "water-lifters"—which are the agents for the efficient distribution of the supply of the water and salts from the intake in the root. Given adequacy in respect of these, all else in the nutritive processes will follow; for the tree, extravagant though it may appear in its output of branches, which are crowded and cumber it, is essentially thrifty in accumulating during opportunity vast stores of reserve food material upon which indent is made for repair and the evolution of new shoots provided the water supply be sufficient. It is the abundance, the healthiness, and the accurate placing of these branches d'appel upon the trees in the Mall that are so significant for the present and future life of the trees.

4. The pruning of the laterals has encouraged the steady upward growth of the

there may be several shoots on different branches competing for the position of leader, and the one that is successful in any year is not necessarily the parent of that one which is the dominant leader in the succeeding year. And, indeed, in nature there is often no distinct leader. There follows from this that when a single main stem is formed it does not come from the continued growth of a single axis elongating at its summit year after year, but it is the product of the combination in more or less vertical line of the bases of branches arising in succession one from the other. What appears to be a simple axis tapering from base to summit is really constructed out of annually formed segments, each the base of a lateral branch, of which the upper part has commonly died in part or in whole. The forking of the stem results from the development of two such systems of segments. The significance of this is evident. The tree in nature is always checking its leader. It is adding to the length of its main stem, not by uniform summit growth of one shoot, but in a zigzag



FIG. 63.—BORDER OF TREE-PEONIES AT WOOD HALL, SYDENHAM.

(See p. 142.)

[Photograph by John Gregory.]

leaf surface for the work of the tree in water lifting, breathing, and assimilation has been maintained.

I say this with deliberation because the old theory, contradicted by the operations of coppicing and pollarding, that there is an absolute co-relation between the root system and the branch system of a tree in consequence of which the removal of a branch implies the death of the co-related root, appears to have adherents still. The science of the matter is really this:—The roots depend for the elaborated food material they require for growth upon the area of green assimilating surface exposed by the epigeous portions of the tree to the air, these, in their turn, depend for water and mineral salts upon the area of absorbing hairs upon the root tips. There is no necessary relation between any definite areas in the two regions above and below ground; the colonial organisation of the plant secures the service of every active cell for the

main stem without forking or divarication of the top. The exuberance of apical growth has, however, been wisely kept in check, and a balance between the apical growth and development of laterals has been thus maintained. I say this with emphasis, because this checking of the "leader" has been, I see, specially condemned, and I must endeavour to explain now the reasons which justify the method that has been pursued.

I have stated on a previous page that no shoot in the Plane tree continues growth by a terminal bud. Its elongation is limited. A leading shoot, therefore, in the Plane tree is not a terminal one in the sense in which it is so in a Fir, for instance, but is always an extension of a lateral bud—and that not close to the top—of a parent shoot the upper part of which dies back to, or near to, the point of origin of the lateral bud. In consequence of this method of development

manner through the bases of the successive shoots, the top parts of which are arrested and die. The length of segment added yearly varies with the position on the shoot of the bud which develops into the temporary leader.

That is nature's process. The procedure in the Mall follows it, but on systematic lines:—

- (a) Selection, not the chance outcome of a struggle betwixt competing shoots, determines the position of the shoot that is to be leader.
- (b) Selection determines also, in relation to the general growth in each successive year, the length of the base of the leader that is to be added as a segment to the summit increase of the main stem.
- (c) And then for the method of slow decay by which nature rids the tree of the upper part of the quondam leader is substituted the prompt definite operation of the pruning knife.

It is obvious that there is opportunity in this for the exercise of skill and judgment. No rule can be formulated as a general instruction. Each tree must be studied for the ascertainment of its requirements, which will be governed by its intrinsic vigour, and by its relationship to surroundings. And here I wish to give prominence to one point in its bearing upon the trees in the Mall. Removal of competing leader shoots leaves the selected leader in a position of exposure to wind currents, comparable with that of the individual tree itself in isolated planting. It loses the protection of its fellows, and is in consequence subject to greater risk of breakage, or even of being blown out entirely than it is where there is no interference with natural branching. In the case of trees like those in the Mall—of vigorous growth in rich soil, forming long leaders with less tenacious wood—the liability to injury in this way is very great, and some of them have suffered. The damage can be repaired by the formation of a new leader, but the accident means retardation of upward growth. The importance of this as a factor in the problem of pruning the trees in the Mall cannot be over-estimated, and it has been well considered, and practice correctly moulded in relation to it by those who have had the direction of the pruning.

If I have made my explanation clear, the Board will realise that the practice pursued in the parks is thoroughly sound, and based on scientific principles. The natural development of the growth-form of the tree has been disciplined to give the form that is required in the particular situation, and in an admirable manner. So well, indeed, that I should like, were it possible, to have a photograph of the trees without foliage and with foliage transmitted to every local body to which the care of trees in thoroughfares is entrusted as an example of what should be aimed at.

I examined also the young trees in the park surrounding the Mall, and found there the same excellence in the pruning.

I may, in concluding, point out that in contrast with, and emphasising the excellence of, the method pursued in the Mall and the parks, the young Plane trees in Piccadilly, opposite Hamilton Place, show mutilation by unscientific pruning—trees with besom tops and twisted truncated limbs bearing a few brittle shoots and an inadequate number of branches d'appel. To anyone who wishes to see side by side illustration of correct and of incorrect treatment of young Plane trees in thoroughfares, I commend a study of adjacent specimens within the Park and in Piccadilly. Unfortunately the Piccadilly type is that which is too commonly found in thoroughfares, and is the cause of the frequent condemnation of the use of the pruning knife on street trees. A photograph of a Park tree and a Piccadilly tree side by side would be an interesting object lesson to circulate along with the photograph which I suggested above. The perfection of pruning seen in the park is rare, and it is a matter for congratulation that there is being prepared in this way within the Park a heritage of fine trees for the admiration and gratification of generations to come.

After what I have said above the Board will not be surprised that I make no suggestion of alteration in procedure in the treatment of the trees. The staff which has brought the trees so successfully through their first juvenile stages may be safely trusted to apply sound scientific principles in the treatment of the trees through their later years of adolescence, and to modify, practice, and adjust it to the immediate and prospective requirements of the trees. The trees are in the making, and the Board may with confidence ask those who are disposed to criticise adversely the method of procedure pursued to recognise this, and to await with patience the gradual evolution of the avenue of stately trees for which the foundation has been securely laid. *Isaac Bayley Balfour.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, ante, pp. 64-70.)

(Continued from page 137.)

5, SOUTHERN COUNTIES.

MIDDLESEX.—Both Pears and Plums promised well early in the season, but the good prospects were only partially fulfilled in the case of the former fruits, and less so in respect to Apples. Aphid and American blight have been troublesome on the trees. Our soil is shallow, being only 2 feet deep, and the subsoil is gravel overlying the London clay. *James Hudson, Gunnersbury House Gardens.*

Fruits of all kinds set well, and especially Peaches, Plums, Apples, and Pears, but their numbers were greatly reduced through the effects of hot weather when they were small. Strawberries have been very good, but Raspberries and Black Currants were very light crops. Gooseberries were damaged by frost and snow when the bushes were in bloom, but the Gooseberry crop was, on the whole, a fair one. Our soil is of a light nature and the trees have to be watered frequently during dry weather. *H. Markham, Wrotham Park Gardens.*

The fruit crops in this district are very deficient. Apples are the best crop and Pears are the worst, there being fewer fruits than we have had for several years past. *W. Bates, Cross Deep Gardens, Twickenham.*

Nearly all kinds of hardy fruits developed a profusion of blossom, but many of the fruits failed to set, especially Pears. Of Apples, Lane's Prince Albert is the most plentiful, whilst amongst Pears Souvenir du Congrès is the most satisfactory variety this season. The Plum crop is somewhat smaller than usual, owing to many of the fruits having dropped. Gooseberries and Red Currants were both heavy crops. Black Currants were small in size and very scarce, the bushes being badly attacked with aphid early in the season. There was a good crop of Strawberries, but the hot, dry weather adversely affected the crop, which was over much earlier than usual. We gathered the first fruits of Royal Sovereign in the open on June 8. Laxton's Epicure is a fine, new Strawberry, the berries being of exceptional flavour; it is a mid-season and late variety. Our soil here is a rather light loam, overlying the gravel. *James Hawkes, Ostley Park Gardens, Isleworth.*

SURREY.—Early in the season the fruit crops were never more promising, but cold winds in April and frosts in the middle of June spoiled the prospects. *S. T. Wright, R.H.S. Gardens, Witley.*

The fruit crops generally are above the average. Apples are more numerous than usual and Pears are an average crop for this district, whilst the trees are cleaner than usual. Plum trees are almost ruined by aphides, but the crop of this fruit promises to finish satisfactorily. Cherries were above the average, but aphid was very troublesome on the trees. Peaches, Nectarines, and Apricots are under the average, owing to frosts whilst the trees were in flower. Small fruits, including Currants, Raspberries, Loganberries, and Gooseberries are abundant and good in quality. Strawberries were a good crop, the best varieties being Royal Sovereign, Givon's Late Prolific, Waterloo, Laxton's Latest, and Louis Gantier. Nuts are plentiful; it is several years since Walnut trees carried such heavy crops. Our soil is a light loam, with a gravelly subsoil. *Geo. Kent, Norky Park Gardens, Bocking.*

Pears are very scarce, but Apples, in addition to being a good, average crop, are of good quality, and very forward. Black Currants and Strawberries were also satisfactory, but the Plum crop is much below the average. *W. H. Honess, Hopdene Gardens, Holmbury St. Mary, Bocking.*

Of Apples, Cox's Orange Pippin and Allington Pippin are usually satisfactory varieties. Conference and Princess Pears also crop well. Royal Sovereign, Leader, and Givon's Late Prolific are the best varieties of Strawberries. Black Currant bushes are injured by

the mite, but up to the time of writing I have observed no signs of mildew on Gooseberries. Caterpillars never trouble us. This I consider is due to the absence of digging between the bushes. *James Watt, Mynthurst Gardens, Reigate.*

The Apple crop promises to be a good one, but rain is needed badly to cause the fruits to swell. Pear trees blossomed freely, but many of the fruits did not set, and the crop is a small one, especially on standard trees. Plums set very badly, and the trees are badly infested with blight. Peaches and Nectarines also are unsatisfactory, the cold weather in spring having spoiled promising crops. Apricots set badly, owing to frosts and snow in the spring. Of bush fruits, Currants set well, but the fruits generally were small, owing to the drought. Gooseberries were a very poor crop, but Raspberries were plentiful, although the fruits were small. Strawberries set well, but the crop was only moderate, the fruits failing to swell for want of rain. The soil in this district is very light, and the crops generally are in want of rain. *James Lock, Outlands Lodge Gardens, Weybridge.*

SUSSEX.—All fruit trees flowered remarkably well, but the frost and cold winds in the early part of April did much harm, especially to Pears, Cherries, Peaches, and Nectarines. Our soil is a loam, on a subsoil of stiff clay, and is very wet in the winter. *J. Muddell, Sedgwick Park Gardens, Horsham.*

Gooseberries were a fair crop, and Red and White Currants very plentiful. Black Currants were an average crop of very fine fruits. Plum trees blossomed profusely, and the fruits set well, but drought and a very severe infestation of aphid caused the majority of the fruits to turn yellow and drop. The result is that the crop is not more than two-thirds of the average. Apple trees also blossomed profusely, and mature trees of most varieties have an average crop of fruit, but on young trees the blossom to a large extent proved abortive, reducing the crop as a whole below the average. Pears are almost a failure, and the Cherries also were very scarce, the number of the fruits being reduced by drought. Raspberries were a fair crop. The soil here is a mixture of sand and clay, varying from light to heavy; the subsoil is sand in places and clay or mixed clay and sand in others. *William E. Bear, Hailsham.*

The fruit crops are very promising, though not so abundant as might be expected from the large quantity of blossom on the trees. Strawberries have been excellent, the varieties Royal Sovereign and Givon's Late Prolific being especially good. Gooseberries were a very fine crop, and Cherries on cordons and fan-trained trees were also good. Raspberries were excellent, as rain fell in time to save the crop. Black and Red Currants were both good crops, although the bushes were badly attacked with aphid, and only after several washings with powerful insecticides were they effectually cleansed. Apple trees also were badly attacked, but they are now clean, and the fruits are swelling rapidly. Much thinning will be necessary on bush trees. Some varieties of Pears are well cropped, while others are carrying only a few fruits. Plums are very satisfactory, all the choice varieties of the Gage type being heavily cropped. Filberts, Cobnuts, and Walnuts are all good crops. Hybrid Raspberries and Blackberries are also satisfactory. Our soil is a heavy clay. *W. A. Cook, Leonardslee Gardeys, Horsham.*

The fruit crops generally are very good; Raspberries, Red Currants, and Gooseberries were all heavy crops, and the dry weather did not affect them. The soil being of a heavy, retentive nature, and all the trees were heavily mulched with manure early in the season. Strawberries were plentiful, but the berries were not quite so large as usual; Royal Sovereign and Waterloo gave better results than Monarch and President. Apples are excellent, Cox's Orange Pippin, Ribston Pippin, Peasegood's Nonesuch, Bramley's Seedling, and Worcester Pearmain being some of the best cropped varieties. *W. J. Langridge, Ote Hall Gardens, Burgess Hill.*

WILTSHIRE.—Apples are excellent in many places, whilst in others both the crop and the quality are indifferent. Bush fruits, with the

exception of Raspberries, were good and plentiful. W. Gullick, Wilton Road Nursery, Salisbury.

—The scarcity of Pears and Plums is due in a large measure to the previous unfavourable autumn, and the consequent unripened condition of the wood. There was an abundance of blossom on fruit trees, but nearly all the flowers were imperfect. These remarks apply especially to the tender varieties of Apples and Cherries. Thomas Challis, Wilton House Gardens, near Salisbury.

7, ENGLAND, N.W.

LANCASHIRE.—The early prospects of abundant fruit crops have not been realised. Cold, dry winds when the blossom was expanded, and a long spell of drought afterwards, caused most of the fruits to fail. A severe infestation of aphids also helped to cripple or destroy the bloom. Subsequent rains caused what fruit did remain to commence swelling, and the quality promises to be good. Our soil is of a heavy, retentive nature overlying clay. E. F. Hazelton, Knowsley Gardens, Prescott.

—There was a good show of blossom on fruit trees, but late frosts did much harm and the cold weather was followed by heat and drought when the fruits were setting, causing many of them to drop. Strawberries and other small fruits have been very satisfactory. Pears are a very poor crop. A portion of our soil consists of a rather cold, heavy clay, which is not suited for fruit culture. Thomas Wyton, Abbey-tand Gardens.

WESTMORELAND.—All fruit trees and bushes flowered remarkably well, but the crops are small. Syringing with quassia and soap have cleared the trees of aphides, and at the time of writing the foliage is clean and healthy. Pears are a thin crop, but Apples are good, particularly the varieties Annie Elizabeth, Bismarck, Lane's Prince Albert, and Bramley's Seedling. Raspberries were a heavy crop. Strawberries were of good quality, Royal Sovereign being our standard variety. The soil in these gardens is light and gravelly. W. A. Miller, Underley Hall Gardens, Kirkby Lonsdale.

—The Apple crop was very promising early in the season, but owing to cold, easterly winds and drought in May, with an infestation of aphides, the crop has been practically spoiled. Plums are a very fair crop, especially on wall trees. Strawberries were smaller than usual, but a fair, average crop. Our soil is a heavy loam resting on clay. F. Clarke, Louther Castle Gardens, Penrith.

—There was a promise of a good fruit season when the trees were in bloom, but the dry weather at the end of May and in June spoiled the prospects for a good fruit year. We had an over-crop of Raspberries, the variety Superlative being especially fine. Currants were in good quantity, but small in size. Strawberries were a small crop and the berries under-sized, notwithstanding the beds were mulched. Our soil overlies limestone gravel. J. Moorhouse, Dalton Hall, Burton.

8, ENGLAND, S.W.

CORNWALL.—With the exception of small fruits and Strawberries, the hardy fruit crops are very disappointing. Owing to the wet, sunless autumn of 1910 the wood of fruit trees did not ripen well, especially in the cases of Apples and Peaches. We also experienced cold, east winds during the first week in April, which ruined the Pear and Plum crops. Our soil is of a rather light nature, with a marly, rock subsoil. W. Andrews, Tregothnan Gardens, Truro.

—Apples and Pears are, on the whole, of a poor quality, but the crops of these fruits promise to be much better than those of last year. The crops of stone fruits were ruined by frost and cold, east winds. During early April 10° and 11° of frost were registered, doing much harm to the vegetation in this district. Soft fruits, and Strawberries especially, are good and plentiful. The soil here is mostly of a poor, gravelly nature, and largely consists of granite and ironstone. Frank J. Clark, Tehidy Park Gardens, Camborne.

(To be continued.)

THE FLOWERS OF CHAUCER.

(Continued from page 126.)

RAISINS.

Nor of the raisins have the wyne,
Til grapes be ripe and welles ayne.
Romaunt of the Rose, VII. 127.

Raisins here are not the dried fruit, but the ripe Grapes fit for picking.

REED.

1. But rede that boweth down with every blast,
Lightly cesid the wynd, it wil up ryse.
Troilus and Cryseide, V. 104.
2. Thys hous of whiche I rede,
Was made of twiggis, salwe, rede.
House of Fame, VI. 256.

ROSE.

1. With the rose colour strof hire hewe.
Knights Tale, I. 121.
2. Thou with thi garland, wrought with rose
and lylie.
Secounde Nonnes Tale, III. 7.
3. This aungel had of roses and of lillie.
Courones tuo. Ib. 13.
4. Whennes this soote savour cometh so
Of rose and lillies. *Ib. 14.*
5. Scho [Nature] can peynte a lili white
And rody a rose.
Tale of the Doctor of Phisik, III. 59.
6. His lippes reed as rose.
Tale of Sir Thopas, III. 118.
7. Many a thousand daisies, rede as rose.
Court of Love, IV. 133.
8. Her colour gan aperse,
As rose so red.
Court of Love, IV. 167.
9. Such a sight it was to sene, I trow,
As of these roses ruddy on their stalke.
Ib. 168.
10. Right as the fresh redde rose newe
Against the sommer Sunne coloured is.
Ib. 169.
11. She was as rede as rose.
Troilus and Cryseide, V. 100.
12. Hir rose garlonde white and rede.
House of Fame, VI. 198.
13. Amonge a basket ful of roses. *Ib. 248.*
14. She was as lyke a rose thow
Of colour.
Romaunt of the Rose, VII. 41.

(The *Romaunt of the Rose* is full of notices of the Rose. Many of them simply give the name, but a few are descriptive. I think it best to omit all that have not some descriptive character.)

15. A roser chargid fulle of rosis,
That with an hegge aboute enclosid is.

The savour of the roses swote
Me smote right to the herte rote,
As I hadde alle embawmed be.

Of roses ther were grete wone,
So faire wece never in Rome.
Romaunt of the Rose, VII. 67.

16. Chapelett of roses of Whissonday. *Ib. 85.*

17. I saw the rose whanne I was nigh.

Fresh, rody, and faire of hewe,
Of colour ever iylche newe. *Ib. 125.*

18. Agayne the sunne, that roos as rede as rose.

Legende of Good Women, VIII. 47.

19. A fret of rede rose leves,
The freshest syn the worldis was first
begonne. *Ib. 51.*

20. She was faire as is the rose in May. *Ib. 61.*

21. Fairer than rose, sweeter than lilly flour.
Lamentation of Mary Magdalene, VIII. 180.

In all Chaucer's notices of the Rose there is one epithet worth noting. All his Roses are red. There are no British Roses that can be called a true red; the pink Rose of the Sweet Briar comes nearest. The red Roses of Chaucer must be

foreign species, probably *R. gallica*, and this is a proof, among many others, that English gardens in his day were not the dull, grey, herb gardens that they are generally supposed to have been. I think it would be easy to prove that English gardeners, from the earliest times, have done their best to make their gardens bright and beautiful, and not merely adjuncts to the still-room. I believe a love of beautiful gardens is an essential part, and always has been, of the British mind.

RUSH.

The stalke was as rish right.
Romaunt of the Rose, VII. 63.

RYE.

Gif us a bussel whet, or malt, or reye.
Sompnours Tale, II. 105.

SAFFRON.

His heer, his berd, was lik safroun.
Tale of Sir Thopas, III. 118.

The Crocus that produces the Saffron was grown in England before Chaucer's time.

SAGE.

Fermacyes of herbes, and eek save
They dronken, for they wolde here lyves have.
Knights Tale, I. 176.

Save is the Salvia or Sage. There was no plant of higher medicinal reputation in mediæval days. It was supposed to be a panacea for every complaint; hence the line:

"Cur moriatur homo cui salvia crescit in horto?"

To which came the truer answer:

"Contra vim mortis non est medicamen in hortis."

SALLOW.

1. Who that buyldeth his hous al of salwes

Is worthy to be honged on the galwes.
Prologue of the Wof of Bath, II. 65.

2. And al thys hous of whiche I rede,
Was made of twiggis, salwe, rede.
House of Fame, VI. 256.

Sallow is one of the old names of the Willow, derived from the same root as the Latin *Salix*.

SETWALL.

See Cestwall.

SLOE.

Blak as bery, or ony slo.
Romaunt of the Rose, VII. 43.

SYCAMORE.

1. [The hedge] with sycamore was set and cglatere.

Flower and the Leaf, IV. 239.

2. Upon a table of sycamore.

House of Fame, VI. 236.

TARES.

1. Ne sette I nought the mountaunce of a tare,
So that I couthe to ought to your
plesaunce. *Knights Tale, I. 139.*

2. But thereof sette the meller not a tare.

Recces Tale, I. 223.

3. Of al her art no counte I nat a tare.

Ib. 225.

THISTLE.

1. Thesteles sharpe of many maners.
Romaunt of the Rose, VII. 69.

2. (Ther were) and also thistleles thikke.

Ib. 72.

THORN.

Thorn, beech, hasil.
Knights Tale, I. 182.

H. N. Ellcombe, Bitton Vicarage, Bristol.

(To be concluded.)

The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

BURLINGTONIA.—The small group of epiphytic Orchids known as Burlingtonias is now included in the genus *Rodriguezia*, but for garden purposes it may be regarded as distinct. The Burlingtonias include several attractive species, for though the flowers are small, the plants are bright and effective, being free in blooming and of compact habit and growth. The best plan is to grow them in teak-wood baskets, or pans, affording them a moderately thin layer of compost, consisting of *Osmunda* fibre, Polypodium fibre, and *Sphagnum*-moss in equal parts. Provide sufficient material for efficient drainage, and surface the plants with a layer of clean, chopped moss. It is a mistake to suspend them close to the roof glass on bare blocks, for, if not prevented the plants will grow so far away from their root-hold that the young pseudo-bulbs will become weakened from want of food. To prevent this, use receptacles that are sufficiently wide to allow the rhizomes to be pegged down to the compost as they lengthen. The plants should be afforded a mild temperature, plenty of ventilation, and a light shading. They should be suspended from the roof-rafters, and, at no time should they be over-watered, although all through the year they require a little moisture.

PILUMNA.—The four species of *Pilumna* have been placed under *Trichopilia*, but they are still best known to gardeners as *Pilumna*. *P. nobilis* and *P. fragrans* are two charming autumn-flowering Orchids. The plants may be purchased cheaply and are easily managed. They are profuse bloomers, the flowers being very fragrant, and capable of lasting a long time after cutting. *Pilumna*s succeed best treated as pot plants, grown in a mixture of *Osmunda* fibre two parts, Oak leaves one part, chopped *Sphagnum*-moss one part, and some coarse silver sand, the components being mixed thoroughly. The pots should be well drained, and the compost pressed moderately firmly about the roots, finishing with a layer of *Sphagnum*-moss. The plants grow freely in cool conditions. They should receive copious supplies of water during their season of active growth, but when the shoots are mature only sufficient moisture to maintain the pseudo-bulbs plump and the roots in a sound, healthy condition is needed.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of Haddington, K.T., Tynningham, East Lothian.

THE SEASON.—One hears from all parts of the abnormally early flowering of autumn plants with pessimistic forebodings of the condition of the flower garden a month hence. The hot weather on the 9th inst. had by far the worst effect on flowers than any previous day, the heat, with a brisk breeze, causing the plants to wilt and the blooms to wither and drop in a manner hitherto unexampled. I am hopeful that the shorter days and the cooler nights will do much to correct matters. Meanwhile Sweet Peas here have been picked bare of flowers and seed pods. Violas, which have in many places been unsatisfactory, have been denuded of their seed pods for the third time and other plants have needed similar attention. Almost everything has had to be watered, at every second or third day. Lobelias, which are apt to die from exhaustion caused by a too abundant flowering, have had fresh soil placed about them. Calceolarias have made less growth than usual, but the plants are now in a fair way to make up for lost time. Single Dahlias are awaiting attention, numberless seed-pods having formed in the course of a few days. The old flower-stems will be cut out, thus allowing space for fresh shoots. Cactus-flowered Dahlias will need to be pruned at brief intervals to permit of the flowers being seen, the growths, in most varieties, hiding blooms if left unchecked. As soon as the flowers of stock-flowered Larkspurs begin to fade

the spikes should be cut off to encourage the early formation of fresh inflorescences. Annual *Chrysanthemums*, as well as varieties of *C. maximum*, develop seed quickly, and the flowers, as the flowers wither, should be removed. Any plant needing supports should be secured to stakes without further delay.

LAVERNER.—Greater use might be made of this common herb in the flower garden, for its colour is as fascinating as its scent is delicious, and, with the exception of very cold and damp situations, it will grow well in any locality. Custom has decreed that the Lavender shall be regarded as a useful plant rather than one of much beauty. Nevertheless, it is handsome in a mass, and is sometimes planted as a low hedge by the side of Grass walks, and I have seen it associated with hybrid Tea Roses with good effect. Where no other means exist of introducing the plant to the flower garden, a space may always be found for it in the mixed border, or, as a last resource, it may be introduced amongst shrubs with such other neglected plants as Rosemary, Wormwood and Rue.

PENTSTEMON.—The Pentstemons are at their full flowering beauty. If it is desired to perpetuate any of the choicer seedlings as well as named varieties, the cuttings may be inserted forthwith. They do very well dibbled into beds of sandy soil in cold frames, or in cutting boxes or small pots. A simple method is to fill a number of pots with suitable soil, plunge the pots as closely as possible in a cold frame and insert a single cutting in each pot. Plenty of side shoots suitable for cuttings may be had, and these are superior to the tips of the main shoots for the purpose. On no account should the shoots be allowed to flag, either before or after they are inserted, and for that reason the frames must be kept close, the cuttings sprayed regularly, and shaded during strong sunshine. The cuttings of the hardier bedding varieties should be inserted in beds, but they must be treated in all other respects similar to those in pots. Any variety selected for seed production should be marked to prevent the spike being cut off when the flowers have fallen.

GAINING SUGGESTIONS FOR NEXT SEASON.—First-hand intelligence is always desirable in practical gardening, hence opportunities should be taken during the next few weeks to inspect other gardens with a view to gaining fresh ideas or becoming acquainted with unknown plants. Besides gaining suggestions during such visits, one may perhaps notice faulty associations and arrangements, affording object lessons to be avoided. It must, however, be remembered that there are gardens in which effectiveness is not so much the aim as variety. In most gardens edgings prove a weak feature of flower gardening, and it should be noted whether, in otherwise good schemes, the edgings add to or lessen the good effect. They are by no means essential, and the practised eye may at once notice whether they have an advantage. Another fault is the excessive use of some popular plant, say the Antirrhinum, which possesses flowers of a great variety of colours. In more than one instance I have seen floral schemes quite spoiled by indulging in a too lavish use of colours. If the scheme for next year's bedding can be settled now it will save much labour and anxiety in the spring. It is an advantage to plan an alternative scheme, which exigencies during winter may make it desirable to adopt.

PLANTS UNDER GLASS.

By JAMES HEDLEY, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

RHOODENDRON JASMINIFLORUM AND R. JAVANICO - JASMINIFLORUM HYBRIDS.—Although these greenhouse Rhododendrons require a degree of warmth somewhat higher than that maintained in the average greenhouse (50° Fahr. as a minimum), and a somewhat moist atmosphere, they will grow well planted out. In small pots these choice plants are not always a success. A span-roofed greenhouse with a central bed, this being given up to their culture, forms an admirable house for them, whilst the side stages may accommodate Ferns in pots, such as stock of *Platanus cucullata* for supplying cut flowers. This will indicate as nearly as possible what the requirements of the Rhododendrons really are. Plant

them in rather rough peat mixed with tough, fibrous loam and provide plenty of materials for drainage purposes. Make the bed quite firm at the time of planting, which should be done, if possible, during August.

NERINE.—If any repotting is needed in the case of these handsome autumn-flowering bulbs it should be attended to without delay. It is better to do this before than after the flowering period, and the work affords an opportunity for grading the bulbs, putting the largest ones together in the biggest pots and so on in proportion. Use drainage materials freely; if the pots are filled to almost one-third of their depth with crocks it will not be too much. Select the best possible loam, full of fibre and substance, and mix with it a quantity of well-pulverised mortar rubble to keep it porous and open. Cover the bulbs about one-half their depth with soil, and secure them firmly therein. Examine those also that may not need repotting and see that the drainage is perfect, with no indications of worms at the bottoms of the pots. A watering with weak lime-water will drive any worms out of the soil that may be present.

VALLOTA PURPUREA.—I am induced to mention this fine old plant at this juncture because of the partiality that worms appear to have for the soil in which they grow. A stagnant soil is most injurious to this plant, whereas, if the soil is kept properly drained, a great difficulty in the culture of the *Valloita* is overcome. Where these are flowering pollinate a few of the stronger flowers for the purpose of raising a fresh stock from seed; allow only one seed-vessel to develop upon each bulb. If this method of culture were generally followed, and overpotting carefully guarded against, there would be failures in growing this useful plant.

THE GREENHOUSE.—The present is a suitable and convenient time for the potting of hard-wooded plants. I refer specially to large specimens and those of a medium size. The potting may be done up to the latter end of August, but be careful not to disturb any in flower or about to bloom. The peat used in the potting must be of the best quality; it should be hard and consist largely of fibre. Soft or spongy peat is suitable for many plants, including Ferns, but not those of a hard-wooded nature. As the plants will occupy their pots for a considerable time, the potting should be thorough and the materials of the best quality. Employ a certain proportion of fibrous yellow loam, except in the cases of *Erica*, *Epacris*, *Darwinia*, and *Aphelexis*. A small amount of charcoal broken about the size of nuts will serve a good purpose if silver sand of the best quality is not available; some charcoal should be used in any case in potting plants of *Darwinia* and *Aphelexis*, as it suits their delicate, slender roots. Pot firmly and keep the collar of the plant raised somewhat. See that the ball of each plant is moistened thoroughly before the potting is commenced, and after it is finished give a good watering. The majority of the plants may be stood out-of-doors in a sunny situation to favour a hard, enduring growth.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

CURRENT BUSHES.—Black Currant bushes may now be partially pruned by removing all the old fruiting wood, as this will greatly assist the ripening of the growths of the current year, which will furnish fruits next season. Red and White Currant bushes also may have the superfluous side growths removed for a similar reason, and it will also lessen the amount of pruning at a later date. All fruit trees that have not been thoroughly cleansed of insect pests or deposits of dirt will be much benefited by frequent syringings.

STORING FRUIT.—If not already done, the fruit room should be made ready for the reception of the fruit. Walls, shelves, and all wood-work should be thoroughly cleansed, and an abundance of fresh air afterwards admitted to thoroughly sweeten every part of the interior of the building. It is the practice of some to arrange a layer of straw or hay on the shelves, on which to place the fruit, and this cannot be too strongly condemned. The least mustiness of these materials will quickly impart a musty

flavour to the fruit, and there is a danger from moisture which both hay and straw absorb and retain from the atmosphere. Strips of coarse canvas sheeting are much to be preferred, as these may be removed easily, washed, and dried as often as is necessary, and they will last in a good condition for several years. The gathering of Apples and Pears should, if possible, be done during the middle of the day, or at a time when no moisture is present on them. As the fruit is gathered, it should be conveyed to the fruit room, carefully placed on the shelves, and labelled with the name of the variety. Some gardeners, after the fruit has been stored, cover the choicer varieties with thin canvas, tiffany, or sheeting, which not only keeps the fruits clean and free from dust, but tends to their preservation by preventing a too rapid evaporation of the juices. The most important points to be observed in the storing of fruit appears to be the exclusion of air currents, the maintenance of a moderately low and equable temperature, and the exclusion of direct sunlight. Artificial heat is not necessary in a properly-constructed fruit room, for too much warmth will hasten the ripening of the fruit, and many will be spoiled before they are required for use.

STORING NUTS.—Filberts, before being stored, should be well dried upon mats or cloths, and have the husks removed from them. When they are quite dry, they may be laid in boxes and placed on shelves in the fruit room. Some prefer to select the finest Nuts and pack them in sand or bran, in an earthenware vessel—a method frequently employed for preserving Walnuts.

GENERAL REMARKS.—Protect all ripening fruits from birds and insects. Earwigs, wood lice, flies, and wasps are now very troublesome in the fruit garden, and should be destroyed or trapped by every possible means. Cover the trees wherever possible, with hexagon netting or tiffany, and suspend wide-mouthed bottles, partly filled with water sweet liquid, such as sweetened beer, or treacle and water, on various parts of the walls or trees. The shoots of wall trees should be secured by nailing or tying, and the lateral growths stopped. If the directions given in previous Calendars have been carried out, very little work of this kind is now necessary. Gather Plums as soon as they commence to ripen, especially if the weather is showery, as the fruits are soon cracked and spoiled by rains. Grafts on old trees that were headed back should now be tied securely to stakes to prevent them being broken by winds. Remove all shoots growing from the stock below the grafts.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

CHERVIL.—Make frequent sowings of Chervil in some shaded part of the garden. Water the plants freely in dry weather in the evening. About the middle of September a good sowing of Chervil may be made to furnish plants for the winter. Choose a sheltered site where protection from frost and snow may be afforded.

SWEET MARJORAM.—Plants of this herb set out a month or more ago should be cut to within 2 inches of the ground and allowed to make fresh growth before they are lifted and potted for winter supplies. The plants should be wintered in a slightly heated frame, removing the lights during fine weather to prevent the foliage from damping.

BASIL. If seed of Basil is sown now and the seedlings pricked off into pots as soon as they are large enough, the plants will furnish a plentiful supply of green leaves throughout the winter. Grow them in a temperature of 65°.

WINTER ONIONS.—A sowing of Onions for winter use should be made at about the end of August in ground which was manured for some early crop. The soil should be dug deeply, breaking the particles finely, and afterwards treading it moderately firm, when it is dry enough for this operation. When the surface has been made level, drills should be drawn 15 inches apart and the seeds sown thinly, in order to promote the growth of sturdy plants for spring planting. If the ground is dry at the time of sowing, the drills should be soaked thoroughly with clear water the night previous. Sow the seeds in the early morning before the

soil in the drills becomes caked by the sun. Ailsa Craig, Golden Rocca, and White Lisbon are three of the best varieties for sowing now. Spring Onions will be ready for lifting earlier than usual this season. As soon as the tops have died down, lift the bulbs carefully, allow them to remain on the bed, and carefully turn them on every fine day until the tops have quite withered. When ripened, they should be stored in a well-ventilated loft.

WINTER CUCUMBERS.—The present is the best time to plant Cucumbers for furnishing early winter supplies. If fermenting material is available, a hotbed should be made up to within 2 feet of the roof-glass, and on this small mounds of soil should be placed to within 5 feet of each other. When the temperature of the bed is 85°, the planting may be done, but the temperature of the bed needs to be watched carefully, as the young roots may be injured by excessive fermentation. If the temperature should rise too high, make a few holes in each mound to allow some of the heat to escape. Place a stick to each plant, and secure the main shoot with a tie until it reaches the trellis, when the top may be pinched out to encourage the development of the side shoots as quickly as possible. Use the syringe freely to maintain a moist atmosphere. Plants from which Cucumbers are being cut should be given liquid manure freely. Keep the growths well thinned and avoid overcropping. Seeds may be sown now to procure a supply of seedlings for planting in September. These plants should not be allowed to fruit until the end of the year, when they may be expected to furnish supplies throughout the spring months.

ASPARAGUS.—In hot, dry weather, Asparagus plants often ripen large quantities of seeds, which cannot be removed without damage to the plants. If the bed is well soaked with manure water three or four times before the growing season is over, injury may be prevented. In exposed positions no time should be lost in staking and tying the plants, especially young plantations that were formed last spring.

FRUITS UNDER GLASS.

By E. BURGESS, Gardener to the Hon. Viscount GILES, Ashdown House, Hertfordshire.

TOMATOS.—Tomato plants require plenty of manurial stimulants to assist the fruits to develop. Gather them immediately they have coloured, or if of very large size they may be picked a little before they are quite ripe and allowed to finish on a warm shelf. Prevent a too humid atmosphere, as this, together with an excess of water at the roots, frequently causes the fruits to split. Any fruits that show exceptional merit in form, colour or productiveness should be saved for seed purposes. Select the best specimens, ripen them thoroughly, wash the pulp through a fine sieve, and afterwards dry the seeds. The present is a good time for making a sowing to raise plants for winter fruiting. Select a variety that is known to be of a free-setting nature.

FRUIT TREES IN POTS.—The earliest-forced pot-trees of Peach and Nectarine will need attention in repotting, which is best done before the trees lose their foliage, and the roots become inactive, as the trees then become well established before they are taken indoors again. One of the most important items in connection with the potting is the provision of proper drainage, which to some may seem unimportant. It is not the quantity of crocks that matters, but selecting them of sufficient size according to the nature of the pots, arranging them properly and covering them with some material, preferably turfy loam, to prevent the fine soil from clogging the crocks. Trees in large pots will, in many cases, have to remain in the same receptacles, but smaller trees will benefit by a shift. Before commencing the work, have the soil and other necessities in readiness. A suitable compost is formed of good turfy loam, broken in pieces, and mixed with wood-ashes, lime-rubble and river sand. Pot the trees firmly after having first removed carefully all the old soil possible from the ball, and shorten with a sharp knife any thick roots which do not possess fibrous roots. Make quite sure that the new soil reaches the base of the pots by adding it gradually and ramming after each fresh addition. After potting, give a thorough watering with a rose-can, and stand the pots

where they may be shaded for a time. Syringe the trees frequently, but exercise care in applying water to the roots. In the case of large specimens, reduce some of the old soil around the edge of the pots, and loosen the roots carefully with a pointed stick, so that new soil may be added.

FIGS.—Fig trees in pots also need potting or top-dressing, as the case may be, at this season. These plants do not require disturbing annually, as is necessary with Peaches, provided the drainage is in a proper order, and the trees healthy. Young plants, however, may be given frequent shifts. Any plants not requiring potting will be benefited by a top-dressing of sweet material, removing the old soil as low as can be done without injury to the roots.

MELONS.—The season has been an ideal one for the culture of Melons, and the result has been the production of fruits of the highest quality and good flavour. Where the fruits have just set or are swelling, plenty of atmospheric moisture must be provided, and the plants syringed well to destroy red spider. Plants on which the fruits are swelling should be given liquid manure and other stimulants. A slight circulation of heat in the hot-water pipes at night will be beneficial at this season. Ventilation may be afforded in the day time during hot weather to encourage a sturdy growth. Admit fresh air freely in houses where the fruits are ripening and withhold water. As soon as the plants in pits are cleared of their fruit they should be removed without delay, so that the walls may be limewashed and the house made clean. Where plenty of fire-heat is at the command of the grower there is still time to plant another batch of Melons. Select a house where the maximum amount of sunlight may reach the plants, as this will be found invaluable later in the season.

WASPS.—The greatest care should be exercised in preventing wasps from gaining access to fruit houses. Within a radius of one mile we have destroyed 230 nests.

THE APIARY.

By CHILDS.

HONEY DEW.—It is probable that samples of honey will this year be spoiled by the addition of "honey dew." In order to ascertain if any is present in the comb, hold a section or shallow frame before a strong light—sunlight, if possible—and if "honey dew" is present it will give the honey a smoky appearance. Another test is the sooty flavour.

RE-QUEENING.—The present is an excellent time to introduce fresh queens. There are many points to be borne in mind, when choosing a queen. Temper must be considered, for this is a trait which cannot safely be ignored, and hybrids seem to inherit all the bad qualities of the races from which they have been raised. In some cases the stocks from such queens cannot be manipulated with safety even by the most skilled apiarist, because the bees are so vicious. Again, the descendants of some queens are given to excessive swarming, which is not desirable. Some stocks build a large amount of brace comb, whilst others make poor cappings, giving the combs a watery appearance that detracts from their appearance. In choosing foreign queens, remember that Carniolans are quiet and prolific, and that they cap sections almost as well as the native bee, but they swarm excessively. Lucifans or Italian bees may be distinguished easily by the three yellow bands around the abdomen. These bees breed rapidly during the spring, are easily handled, and, unlike most foreign strains, they remain on the comb during manipulation. They have a long tongue, which enables them to reach nectar far out of the reach of other breeds, they do not swarm excessively, and are about the best type for a large production of extracted honey. The Cyprians are very pretty, and they gather large quantities of honey, but they are very excitable, difficult to handle, and no one should operate amongst them without a veil and a smoker well charged. The temper of Syrians is much the same, and for this reason they should be avoided. The price of all queens is low during August and September, so that the present season is the best time to buy them. In all cases, insist on a written guarantee, being given that the queens are from apiaries free from disease.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturalists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, AUGUST 26—
Symington Fl. Sh. Hawick Fl. Sh.

TUESDAY, AUGUST 29—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. Fred. Enock, F.L.S.)

WEDNESDAY, AUGUST 30—
Nat. Vegetable Soc. Sh. in Roy. Hort. Soc. Hall, Westminster. Irish Gard. Assoc. and Benev. Soc. meet. Cheshire Agric. Soc. Sh. at Chester. Salisbury and District Gard. Soc. Annual Outing.

THURSDAY, AUGUST 31—
Dunder Fl. Sh. (3 days).

SATURDAY, SEPTEMBER 2—
Eborer Hort. Soc. Sh. at Coldstream. Soc. Française d'Hort. de Londres meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—60.1°.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, August 23 (6 p.m.): Max. 70°; Min. 66°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, August 24 (10 a.m.): Bar. 29.9°; Temp. 71°; Weather—Sunshine.

PROVINCES.—Wednesday, August 23: Max. 68° Cambridge; Min. 58° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY—
Dutch Bulbs in all varieties, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 10.

WEDNESDAY—
419 cases Liliun Martoni, Roman Hyacinths, and thousands of Miscellaneous Bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 2.

The Orchids of South Africa.*

The sudden death of Dr. H. Bolus, the author of this work, was recorded in these pages on June 3 last, and was followed by the announcement that he had endowed a Botanical Chair in the South African College, Cape Town.

Dr. H. Bolus was a successful stock-broker, though, as he often said, he disliked the business, and he retired many years ago, thereafter to devote himself to the botanical investigation of his adopted country. This work he carried out with great enthusiasm, travelling widely and collecting copiously. Although Orchids were his favourite plants, his studies embraced the whole of the vascular species, and probably no other botanist knew the plants of South Africa so well as he knew them. He visited this country many times in order to compare his specimens with the

numerous types preserved in the various herbaria. In the spring of the present year he came again to England to see the present volume through the press, and, as a note on the verso of the half-title tells us: "The last pages of this book were finally corrected by the author on the eve of his death."

His first independent publication on the Orchids of South Africa bears the title: *The Orchids of the Cape Peninsula*. This volume, which appeared in 1888, contains descriptions of 102 species, illustrated by 36 partly-coloured plates from his own drawings. Then came the first volume of the present work, which was issued in parts between 1893 and 1896, and contains the same number of plates as the second volume and similar letterpress. A third volume is to follow, edited by his niece, Miss H. M. L. Kensit, B.A., who assisted Dr. Bolus for many years in botanical and other work. A sum of £8,000 is set apart by his will for its publication. The letterpress of the two volumes already issued consists almost entirely of descriptions (Latin and English), synonymy and geography of species; but most likely the author had reserved a synopsis of the genera and biological and other notes for the concluding volume. There are many highly interesting supplementary observations on various phenomena of Orchid life in *The Orchids of the Cape Peninsula*, and doubtless the author had put on record others of equal interest. At present there are no complete statistics of the Orchid flora of South Africa as at present known, but in 1888 upwards of 100 species were known to inhabit the Peninsula. Taking the predominating colours in the flowers of each species, Bolus classed 9 as green; 32 as yellow; 8 as brown; 24 as red; 14 as blue; and 16 as white. With respect to odours he observed that, as a general rule, those of red hues were the least fragrant; those with white flowers most fragrant, while the scent of some, especially those having yellow flowers, was heavy and unpleasant. By far the greater number of South African Orchids are terrestrial; few of them showy, but they are often of curious structure. The few epiphytes belong to the genera *Angraecum*, *Ansellia*, *Mystacidium*, *Polystachya*, and *Listrostachys*, none of which has really showy flowers. Of the characteristic African genera: *Satyrium*, *Disa* and *Eulophia*, 16, 29 and 18 species are figured respectively in the present volume. *Disa grandiflora* takes the earlier though less appropriate name of *D. uniflora*. Of the figures themselves, prepared by the author, it may be said that, though possessing no great artistic merit, they are carefully and faithfully executed, and they will be of great service to the field botanist. The name of Bolus will go down to posterity, both as a worker and patron of the branch of natural history which he loved so well. The plates bear dates from 1882 to 1904, and the colour in some instances seems to have faded. About 25 per cent. of the species figured were first described by the author.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of this Society will take place on Tuesday, 29th inst., at 3 p.m. Mr. F. ENOCK, F.L.S., will deliver a lecture on "Insect Pests." At this meeting the Hon. VICARY GIBBS will exhibit a large number of trees and shrubs raised from seeds collected in China by Mr. E. H. WILSON.

FESTIVAL OF EMPIRE ROSE SHOW.—The dates of this show at the Crystal Palace have been altered from August 31 and September 1 to September 28 and 29.

TURIN INTERNATIONAL EXHIBITION. We learn from the Board of Agriculture and Fisheries that it is proposed to hold a temporary show in connection with the Milk Industry at the International Exhibition in Turin from October 1-15. Applications for space at the show must reach the executive committee of the exhibition, via Po, 2, Turin, by the 30th inst. The amount of space required, and whether any motive power is desired should be stated. Further particulars may be obtained at the office of the Intelligence Division of the Board, 8, Whitehall Place, London.

FINGER AND TOE DISEASE.—Experiments with this disease have been recently conducted by Mr. WALTER E. COLLINGE, who finds that lime, followed by a dressing of sulphur, is much better in checking the disease than lime used alone. A field known to be very badly attacked was treated in the autumn of 1909 with a dressing of 15 cwt. of ground, unslaked lime. In the spring the same land was given a dressing of flowers of sulphur, 5 cwt. to the acre. An excellent crop of Swedes was lifted the following autumn, and the roots were practically free from disease. On only one corner of the field was disease noticeable, and this very small. On this patch there was a considerable amount of heavy clay, which was in a very wet and sticky condition, and, quite apart from the fungus disease, badly required liming. A part of this ground, about one-sixth of an acre in extent, was again treated with ground, unslaked lime at the rate of 12 cwt. to the acre in the autumn, followed in the spring with sulphur as on the previous occasion. When the Swedes were lifted in the autumn of 1910 no trace of the disease was found, and the physical condition of the soil had greatly improved.

WEATHER WISDOM.—Much useful information about what is popularly termed "the weather" may be gleaned by farmers and gardeners from a little book of fewer than 50 small pages, entitled *Weather Wisdom in Agriculture*.* If it does not help them to predict coming weather for more than a brief period in advance they will, at all events, be better able to understand the forecasts issued by the Meteorological Office in the daily papers. At the same time, they will obtain some knowledge, it may be for the first time, as to how our various weather conditions are brought about and why at one time they are so provokingly persistent and at others almost as provokingly changeable. If only average states of the atmosphere—in other words, seasonable weather—could be depended on in these islands from day to day throughout the year, the British climate would be as nearly perfect as it well could be for almost all kinds of vegetation, both on our farms and in our gardens. But as such seasonable conditions are rather the exception than the rule, we must rest contented with the good, though much abused, climate we already have, and endeavour to make the best of it with the help of such little weather primers as the one under notice.

* By W. R. Dunlop. Price 1s.

* *Icones Orchidarum Austro-Africanarum extratropicarum*, or Figures with Descriptions of Extra-Tropical South African Orchids, by Harry Bolus, vol. II. (London: Wesley & Son.) 1911.

MISS WILLMOTT'S ROSE BOOK.—The first volume of *Gemma Rosa*, consisting of 12 monthly parts, is now published. A second volume, containing also 12 monthly parts, will complete the work. The edition is limited to 1,000 copies, the subscription price being £1 1s. for each part. The publishers are Messrs. HENRY SOTHERAN & Co.

CO-PARTNERSHIP FESTIVAL.—The entries for the flower show in connection with the Co-partnership Festival of which Mr. HENRY VIVIAN is the president for the year, which is to take place at the Hampstead Garden Suburb on Saturday (26th inst.), are now complete. There will be something like 1,000 exhibits on view. The festival will also provide a concrete example of the

to complete a colony of 1,400 houses on 145 acres on the borders of Hampstead Heath, providing for an estimated population of about 25,000. The festival will include a choir contest, for which there are a score of entries, from co-partnership and kindred societies in the provinces, while a pageant of history will be performed by 300 residents in the suburb. *George Morris, Hon. Sec.*

RUST OF BROAD BEANS.—Broad Beans in the West of England have been badly attacked this season with the rust fungus (*Uromyces fabae*). The disease first attacks the leaves and haulms, upon which it appears as rusty spots, and the spores rapidly spread to the rest of the plants. Infection from year to year takes place from the diseased spots on the old haulms stored in the

last year the orchardists of Ontario made their first tentative attempt to obtain a footing in the English markets. Their success surpassed all expectations; the importers were as satisfied as they were surprised by the quality, appearance and flavour of the fruit; and this year, therefore, Mr. C. A. Dobson, of Jordan Harbour, Ontario, has made arrangements to send to England about 14,000 boxes of choice Peaches. The fruit is kept in cooled chambers on the voyage, and arrives in excellent condition. All arrangements have been completed for the speedy handling of the fruit on arrival in England. The whole of the consignments, which will be shipped regularly each week until the middle of October, will be received this year by Messrs. PARSONS & Co., of Covent Garden. It is anti-



FIG. 69.—VIEW IN THE CONSERVATORY, WOOD HALL, SYDENHAM.

(See p. 142.)

[Photograph by John Gregory.]

co-partnership method of housing. At the previous gatherings, held at the Crystal Palace during the last 25 years, evidence has been given of the development of the co-partnership idea in industry as well as to housing. But it has been impossible to do more than to provide plans and models. The visitor to Hampstead will be able to see in bricks and mortar and in the display of well-kept gardens what has long been the ideal of housing reformers. The Co-partnership Tenants' Housing Council, of 6, Bloomsbury Square, London, may well be proud of the way in which their ideas have materialised in the Hampstead Garden Suburb. Only four years ago that district was absolutely free of dwellings. Now three co-partnership societies are working

rick, so that, if the disease is noted one year, all possible care should be taken to diminish the danger of infection from this source. This disease is seldom dangerous unless it attacks the Beans at a very early stage, and in parts of Worcestershire, where the trouble used to be serious, it has been almost completely prevented by sowing winter Beans. Where this disease has done damage during 1911 early sowing is strongly recommended for later years.

CANADIAN PEACHES AT COVENT GARDEN.—From information supplied us at the instance of the Chief Agent for the Ontario Government, it appears that September will witness the arrival of large consignments of Canadian Peaches. Only

pated that the first shipment will arrive about September 10.

THE MODERN MILK PAIL.—The vigilant eye of the New York Agricultural Experiment Station has fallen on and condemned the old-fashioned milk pail. It is estimated that half the infection which milk receives during the milking process may be prevented by the use of a covered pail. The milkmaid is advised without delay to hire herself to a tinsmith and bid him fix a cover to her pail with an opening of 5-7 inches in diameter. She will soon get used to the new contrivance, and it will keep out many of the microbes which spoil the milk and at times set up disorders in the consumers thereof.

EDUCATION TRAINS.—We reproduce two photographs showing the education trains which are despatched periodically on tours by the authorities of the Agricultural Experiment Station of Purdue University, Indiana. Fig. 70 shows the special education lecture train ready to start, and in fig. 71 are to be seen the "farmers rushing to the cars to hear lectures." The railway companies, recognising the importance of agricultural education to the farmers of the state, give

tributed 1,500 illustrations. The present number contains illustrations of many new genera or genera recently published elsewhere, but not previously figured. Among them are three genera of Grasses described by Dr. STAPF, and four of Ericaceæ described by Mr. N. E. BROWN. The latter are all allied to Erica itself, and all have very small flowers. Those of *Eremiopsis* are only about $\frac{1}{8}$ inch long. *Platycalyx* is an exceedingly slender little shrub, 2 to 3 inches high, with



FIG. 70.—"EDUCATION" TRAIN READY TO START.

special facilities for this novel method of instruction. During the past year two special trains were run, a "Wheat train" (August 22 to September 7), which provided information to no fewer than 14,700 persons, and a "Corn train," despatched on April 25, which provided lectures for 5,000 people. Further particulars of these education or "demonstration" trains were printed in our issue for April 2, 1910.

HOOKE'S ICONES PLANTARUM.—This work, founded in 1837 by the late Sir WILLIAM J. HOOKER, has now reached the second part of the 30th volume, and includes 2,950 plates. The *Botanical Magazine* has served to illustrate the

minute flowers, clustered at the tips of the branches. *Anisericia* is characterised by having a two-lobed tubular corolla and exerted stamens, with bipartite anthers. *Leptericia* is remarkable for its densely-crowded, slender, parallel branches, and minute flowers with a one-celled, one-ovulate ovary and large, peltate stigma. There is a good figure of the interesting South African Bamboo, *Arundinaria tessellata*. *Brachylæna Hutchinsii* is remarkable in being, we believe, the largest or tallest of arboreal Compositæ hitherto described. It is a native of British East Africa, and its height is given as 27-30 metres, equal to 90-100 feet. Some



FIG. 71.—FARMERS ENTERING THE "EDUCATION" TRAIN.

new cultivated plants of Kew, and the *Icones* consists of black-and-white figures of herbarium specimens of plants of economic or botanic interest. From the first the parts were issued at irregular intervals, and there have been intervals of years' duration; but now that it is published at the cost of the Bentham trustees, it appears more regularly. With few exceptions, the drawings have been made by two artists, the late W. H. FITCH and Miss M. SMITH, the latter having con-

tributed 1,500 illustrations. The present number contains illustrations of many new genera or genera recently published elsewhere, but not previously figured. Among them are three genera of Grasses described by Dr. STAPF, and four of Ericaceæ described by Mr. N. E. BROWN. The latter are all allied to Erica itself, and all have very small flowers. Those of *Eremiopsis* are only about $\frac{1}{8}$ inch long. *Platycalyx* is an exceedingly slender little shrub, 2 to 3 inches high, with

A NEW GARDEN WORM.

THE observant gardener is well aware of the fact that different worms are found in different soils and situations. On the lawn one finds the small purple worm (*Lumbricus purpureus*, Eisen), and the turgid worm (*Allolobophora turgidus*, Eisen). In heavy garden soil the long worm (*A. longa*, Ude), the blue worm (*A. profluga*, Rosa), or the yellow tail (*A. studiosa*, Rosa) are common. The true earthworm (*Lumbricus terrestris*, Linnaeus), and the red worm *L. rubellus*, Hoffmeister, like richer soil, and may usually be found in old, well-cultivated gardens. In the manure heap one finds the brandling (*Allolobophora fætida*, Savigny), and in pastures, paddocks, and woody places around the mansion, other species occur. But if one examines the leaf-mould, which is so valuable an accessory to the manure heap, quite a different set of worms is to be found. Some of these vary so much from the typical *Lumbricus* and *Allolobophora* that they have been formed into another group of two or three genera, known as *Eisenia*, *Bimastus*, and *Dendrobaena*. The *Dendrobaenas* are so named from two Greek words, *Dendron*, a tree, and *Bainô*, I go; because they go or live in old decaying trees, or among rotting wood and debris. Many of these have long been well known because of their value in helping to break down useless vegetable matter, and make it fit for the food of other plants.

It is a new member of this group of annelids which I have to describe, and as it seems to be new to science, as well as to our British lists,



FIG. 72.—*DENDROBAENA MERIENSIS*.

I call it provisionally *Dendrobaena meriensis*, Friend, because it was first found not far from Repton, the old capital of Mercia.

The new worm, like the other species of *Dendrobaena*, is a denizen of the leaf-mould, and is very similar in appearance to *D. subrubicunda*, Eisen, and some other native species. It may, however, be at once distinguished from these by the position of the girdle and the arrangement of the head.

The girdle begins on the 22nd, 23rd, or 24th segment, and extends to the 31st, where it seems always to end. No other species is found in England in which the girdle begins so near the head. In the case of one worm (for which I at first mistook the new species) we find the girdle beginning on the 24th or 25th, but this worm (*Bimastus Eiseni*, Levinsen) has the setae in pairs, and not widely separated, as is usual with the *Dendrobaenas*. There are no bands or pores (*tubercula pubertatis*) on the underside of the girdle, but each of the segments is clearly defined. On the back the girdle segments ultimately fuse, but the segments remain for a time sufficiently distinct to enable one to count them. Segments 22 and 23 are the last to fuse. The dorsal pores are large, and begin between the 4th and 5th segments; but ultimately disappear from the girdle when it fuses.

The colour of the upper surface of the body may be described as chestnut or warm brown, the ventral surface being without coloured pigment, and therefore of a yellowish or clayey hue. It is not iridescent like *Lumbricus* or *Bimastus Eiseni*, Lev., nor are the setae closely paired. The head, however, resembles that of these worms in that it entirely cuts the first ring, or makes a perfect mortise and tenon with the peristomium. In the words of Michaelsen, one of our greatest authorities on the subject, the head is tanylobisch. This, together with the absence of tubercula on the girdle, is a very rare feature in the *Dendrobaenas*, and

makes the present species easy of identification. Only one other British worm (*B. Eiseni*, Lev.), outside the genus *Lumbricus*, regularly has this peculiarity.

Besides the position of the girdle, the arrangement of the setae, and the shape of the head, one has the male pores for a guide in external diagnosis. In some cases (as e.g., *L. castaneus*, Savigny) these pores are invisible; in others (as *D. subrubicunda*, Eisen, and especially *D. mammalis*, Savigny) they are situated on such large papillae that the adjoining segments are affected. But if we look at the 15th segment of the new worm we find that while the pores are very distinct, and easily discovered, they are not seated on prominent cushions or papillae.

It is interesting to notice that different worms have their own peculiar modes of progression,

second only 50. In the latter case, however, the total length is nearly as great as in the former, since the segments behind the girdle are as wide as two ordinary rings, and have three annuli, the middlemost of which carries the setae. I have often observed that when a worm's tail has been accidentally shortened it compensates for the loss in this way, and it seems to suggest that each species of worm requires a certain average length of tail for its healthy economy. This may be easily understood if we remember that the food, in passing along the intestine, is constantly supplying the typhlosole with its nutrient matter. If the worm, therefore, were too short the food would not yield up all its stores of nutriment. We do not yet know enough about worms to be able to say whether the tail portion has different func-

mortice and tenon with the first segment, or "tanylobisch." The male pores clearly seen on segment 15, but without raised papillae. Dorsal pores begin between segments 4 and 5, large and clearly seen. Colour warm brown or chestnut dorsally, without pigment on the underside. Setae very difficult to find. N.B.—These researches are undertaken by the aid of a Government grant, and the present article describes the first new species of earthworm found since the grant was made. *Hilferich Friend*, 119, Wilmet Road, Southampton.

ORCHIS ITALICA.

THE members of this genus of terrestrial Orchids are somewhat disappointing plants for pot culture as they are seldom satisfactory after the first season. However, if fresh tubers are obtained and potted in somewhat heavy loam, some species develop strong growths and handsome inflorescences. *Orchis italica* (see fig. 73) is one of the handsomest members of the family, and a well-flowered specimen in a pan forms a striking object when in bloom in a cold greenhouse. The species is a native of southern Europe, where it is found growing on calcareous hills; it belongs to the same section of the genus as our native *O. militaris*. In general habit and appearance it is similar to that plant with the exception that the divisions of the lip in the flower are much longer in *O. italica*. The flowers are a long time in developing, and last through May and June in a good condition. The stout stems reach to a height of from 1 foot to 1½ foot, and bear dense spicate heads of pale-purple flowers sometimes with darker spots. The leaves are long and undulated. *O. italica* is also known as *O. longicruris* and *O. undulatifolia*. Tubers planted out in the rock garden at Kew did not succeed so well as those grown in pots in a cold frame, for the young leaves were damaged by cold winds in spring. W. I.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

ROSE "JULIET."—I was much interested in Mr. Parker's note on this Rose (see vol. xlix., p. 362), and was anxious to see flowers of Juliet grown in Scotland. Your correspondent states that having been with the raisers at the time of its distribution, he had every opportunity of observing its habits and flowering qualities. May I ask Mr. Parker what his experience was with this Rose when he was in England, so far as maidens are concerned? Here, in Mid-Lothian, we have some 50 plants, budded last season on the seedling briar, and each one is rushing to growth and not flowering. A similar experience must be recorded with maidens under glass in pots, and only cut-backs in the open are furnishing flowers. These cut-backs flowered fairly well, but owing to the hot, dry weather experienced here this summer, the colour combination has not been seen to advantage. All the flowers were quartered, no doubt owing to climatic conditions, and the plants yielded but few blooms. We shall get a few autumn flowers, and with cooler and more favourable weather the colour will perhaps be seen in better character. So far Juliet is not a Rose for Scotland, but it is premature to condemn or praise it in these latitudes, as it has had by no means a fair trial. As shown in England by the raisers, it is a most remarkable flower, and I hope cut-backs will give us good results another season. One charming quality of this Rose is the delightful fragrance of the young foliage. I note that your correspondent says that gardeners who wish a "frost-proof" Rose should give Juliet a trial. Will Mr. Parker say where he gained the experience to warrant this statement? Has he actual proof of the hardiness of the variety? Judging from its wood and general character, Juliet seems to be a variety that hardly justifies this assumption, but no doubt this winter will test it in Scotland. Juliet is a splendid acquisition to the garden, and we all wish to see it do well. *George M. Taylor, Mid Lothian.*



[Photograph by W. Irving.]

FIG. 73.—ORCHIS ITALICA: COLOUR OF FLOWERS PALE-PURPLE.

and are characterised by different degrees of activity. The green worm (*A. chlorotica*, Savigny) is, perhaps, the most sluggish species found in England. The purple worm and one or two others go backwards as gracefully as a courtier leaving a drawing room. But the species I am describing has a habit which is not common among English worms, though often met with among certain foreign species, of doubling itself like a fish about to leap, and then with a rebound jerking itself to a considerable distance. We do not yet know too little about the habits of worms to speculate as to the cause or origin of such a habit as this.

The total number of segments in the body varies. One specimen contains 110, but a

second only 50. In the latter case, however, the total length is nearly as great as in the former, since the segments behind the girdle are as wide as two ordinary rings, and have three annuli, the middlemost of which carries the setae. I have often observed that when a worm's tail has been accidentally shortened it compensates for the loss in this way, and it seems to suggest that each species of worm requires a certain average length of tail for its healthy economy. This may be easily understood if we remember that the food, in passing along the intestine, is constantly supplying the typhlosole with its nutrient matter. If the worm, therefore, were too short the food would not yield up all its stores of nutriment. We do not yet know enough about worms to be able to say whether the tail portion has different func-

tions from the central part, but it is clear that each species of worm has a certain average length or number of segments and that this is in some way a necessary part of its economy, just as in other animals the length of certain tubes, channels, and organs is characteristic of the genus or species. I have not been in the habit of dealing in these articles with the internal organisation of worms, as the discussion of such details is best reserved for journals of a different character. I may, therefore, close this description by a brief summary of the facts which I have supplied. *D. merciensis*, Friend: length, 2 inches to 3 inches, about 100 segments, girdle on 22nd-31st without tubercula. Head forming a perfect

FLOWERS IN KENSINGTON GARDENS.—I was pleased to read Mr. Lee's remarks in the issue for August 12, p. 114, on Kensington Gardens. The Lily tank in the Dutch garden is, as he justly observes, very beautiful at this season, and the Water Lilies are flowering freely, with groups of Balushes and Irises between them. Roses around have been making a grand display, whilst in the surrounding borders are good groups of *Viscaria splendens*, *V. picta*, *Salpiglossis* of a fine strain, *Antirrhinums*, *Petunias*, *Campanulas*, *Begonias*, *Nasturtiums*, and *Zinnias*. The trees forming the covered way are making good growth, and the whole gardens present a fine, natural picture, full of repose and quiet beauty. In the beautiful and popular "Flower Walk" near to the Albert Memorial, are fine groups of *Heliotrope*, *Fuchsia*, *Calceolaria*, *Plumbago capensis*, *Antirrhinum*, *Viscaria*, *Coreopsis*, *Pentstemon*, *Verbena*, and *Trachelium*. J. B.

LONDON VEGETATION AND THE DROUGHT.—I have just returned to London after several weeks absence in the country, where I was impressed by the great damage caused by the drought to trees and shrubs, many fine trees of various ages everywhere being apparently quite dead. On returning to London, however, I see vegetation looking quite green and flourishing, although it is the end of August. I was particularly impressed by the rich green foliage of the London Plane, the Poplar, the Ash, and, above all, the glorious Fig. The Squares in which I see these very favourable specimens of successful arboriculture are Trafalgar Square, Golden Square, Leicester Square, Hanover Square and Cavendish Square. The Fig is especially fine in Trafalgar Square. Henry Holden, 3, Harwood Place, Hanover Square.

DWARF CHRYSANTHEMUMS.—Another method of raising dwarf Chrysanthemums besides that mentioned by J. R. on p. 5 in the issue for July 8, is by ringing. Select a shoot with a prominent bud on a specimen plant, and, in August or early in September, when the bud has begun to rise above the foliage, make the tongue in the stem about three or four internodes from the top. The tongue is made in the same way as in Carnation layering. Split a "60" pot in halves, which may be easily done by means of an old saw, and place the two halves together around the stem, securing them by means of a stake and string, as shown in fig. 75. Fill the pot with some light soil, which must be kept moist. In about three weeks roots will have formed, and the rooted part may then be cut off at the bottom of the pot, and transferred to another pot of the same size. The plants should be placed in a cold

plants less than a foot high may be raised in this manner. *Albert Nobbs, The Gardens, Gennings Park, Maidstone.*

THE POTATO CROP.—Although the prospects for a good Potato crop were not favourable early in the season, the yield will prove more satisfactory than was anticipated. The plants were



FIG. 75.—PROPAGATING DWARF CHRYSANTHEMUMS BY "RINGING."

checked early in the summer by excessive heat and dryness, followed by a brief spell of cold weather, and in many localities even frost sufficiently severe to cut back the tops. But the Potato enjoys warmth, and strong-growing main-crop varieties seem to have been benefited by the heat. Early varieties matured prematurely, giving a small crop of medium-sized tubers, but later varieties, where the soil has been deeply worked and enriched with manure, retained their foliage green and vigorous to an unusual degree. No

weeks of heat and drought many breadths of late Potatoes appear healthy and vigorous. But the marked feature of the Potato crop is the general absence of the fungus disease, *Phytophthora infestans*. Has the great heat and dryness so far prevented the disease spores from making growth, and are they but lying dormant ready to become active when rain falls? Although there may not be a heavy crop, the tubers are free from disease, exceedingly well matured, and the plants are sturdy. Generally Potatoes seen at exhibitions this year have been remarkably good. A. D.

SOCIETIES.

ANNANDALE HORTICULTURAL.

AUGUST 12.—The annual show of this society, which is held alternately at Annan and Lockerbie, took place on this date at the latter place. The show compared favourably with the one held last year. Sweet Peas were unusually good, vegetables formed an important feature, whilst, in the fruit section, exhibits of Grapes were very fine. In the open classes for pot plants the most successful exhibitor was Major CRITCHLEY, Stapleton Tower (gr. Mr. W. Niven), his chief competitors being Mr. J. WILSON, Eskrigg, and Mr. W. ANDERSON, Collin. Major CRITCHLEY also won several 1st prizes in the section for cut flowers, other winners being J. DAVIDSON, Esq., Summerville (gr. Mr. Jas. Wilson); Mr. J. TWEEDE; Mr. J. HODGSON, Mount Annan; Mr. D. WHITELAW, Lochbarbriggs; Mr. T. G. GRIERSON and Mr. W. ANDERSON, Collin. Mr. G. L. MOFFAT, Lockerbie, won the 1st prizes in the Sweet Pea classes.

In the vegetable classes the leading prize-winners were Mr. J. DAVIDSON, Summerville; Major CRITCHLEY; Mr. W. ANDERSON, Collin; Mr. J. FRENCH; and Mr. A. CUNNINGHAM.

The principal prize-winners in the fruit classes were J. MATLAND HERIOT, Esq., Hetland (gr. Mr. J. Hiddleston); Major CRITCHLEY; J. DAVIDSON, Esq.; Mr. J. WILSON, Eskrigg; and Mr. J. HODGSON. Major CRITCHLEY led in the class for a collection of fruit.

BRITISH PTERIDOLOGICAL.

THE annual meeting of the members of this Society was held recently at Barnstaple. Former meetings have been held either in the Lake District or Scotland, but Barnstaple was selected this year, with a view to examining the Ferns in the southern counties of England. The weather throughout was most delightful, and the meeting was a success in every way. The business meeting was held at the Golden Lion Hotel, when the president, Mr. Alex. Cowan, occupied the chair. But several informal gatherings took place, and at these Mr. Cowan exhibited, on behalf of himself and Mr. Phillips, a large number of Fern fronds, these embracing some remarkably fine varieties. These included a splendid form of *Osmunda regalis undulata*, found by Mr. Phillips, and far excelling in foliose character an otherwise similar variety of that name found many years ago in the Azores; and *Lastrea dilatata crispae ochracea*, with beautifully crisped frond, liberally and constantly splashed with golden yellow. Another very fine variety was a sub-plumose form of *Lastrea Filix mas*, of a very promising type for cultural selection. Excursions were made to Woody Bay, Hedensmouth, and other districts in the locality, but, owing to the drought, the Ferns in many places were scorched and their growth so stunted as to mask any varietal characters they may have possessed. Dr. Stansfield, however, found a plant of *Asplenium adiantum nigrum* with multifid frond tips throughout, and some very foliose forms of *Lastrea montana*. Mr. Drury, among other minor finds, discovered a Hartstongue resembling lobatum, but with all the frond terminals symmetrically rounded off with serrations radiating around the abruptly-shortened mid-rib like the figures on a clock dial, a rare variant, which he named *Scolopendrium vulgare lobatum radiosorum*. Mr. W. B. Cranfield met with most success, alighting upon two remarkably fine varieties, one a wild deltoid foliose form of *Lastrea Filix mas* with broad dilatate-like basal pinnae, and the other, found on private ground, a peculiarly fine foliose and imbricate variety of *P. aculeatum* which had been found many years ago near Holsworthy.



FIG. 74.—GROUP OF DWARF CHRYSANTHEMUM PLANTS OBTAINED BY "RINGING."

frame for a few days, and afterwards removed to a shelf in a greenhouse near to the glass. By this method splendid plants may be had, ranging in height from 9 to 18 inches. Those shown in fig. 74 were grown in this manner. By a careful selection of varieties that have short flower-stems,

doubt the broad, spreading haulm by shading the ground has assisted in the retention of what little moisture there was in the soil by preventing evaporation, and it is noteworthy that, however dry and hot the weather may be, the leafage of Potatoes does not flag. After nearly eight

SHROPSHIRE HORTICULTURAL.

Exhibition at Shrewsbury, August 23 and 24.

THE 37th annual summer exhibition of this Society was held on Wednesday and Thursday last in the Quarry Grounds, Shrewsbury. The general disorganisation in the railway world had its effect on the show, and fears were entertained, as late as last Sunday, that a postponement would be necessary. But although the tents were scarcely filled so well as usual, the failures were not nearly so numerous as might have been expected, thanks to the secretaries, Messrs. H. W. Adnitt and W. W. Naunton, who put forth every effort to overcome the difficulty. How far the attendance of visitors was influenced by the railway unrest it is impossible to say at the time of writing, but everything points to a much smaller gate than usual. At 5.30 p.m. on the first day the receipts were considerably below the average. Taking the show all round, it was a good average display, in spite of the difficulties already referred to and the long period of drought, which has affected all outdoor crops, hastening the season of many, and generally reacting injuriously on others, especially of flowers and vegetables. The quality of the exhibits showed little deterioration from this cause, if we except Sweet Peas and Roses. Dahlias were finer than usual, the season suiting them; the hot weather has also favoured the production of intense colour in indoor foliage plants, whilst fruits have rarely been seen in better condition. The new class of last year was slightly modified, and this season indoor flowers were not permissible, but the class was arranged for a group of hardy herbaceous and perennial flowers with rockery and pool of water. In the 1st prize exhibit a free use was made of cut flowers, and these were arranged too thickly together. The 2nd prize group was crude in arrangement and the flowers were overcrowded. Aquatics, with the exception of a few varieties of Nymphaeas, were not well represented. More room should be given another year to this class, for with greater scope, better effects could be produced. Mr. Naunton, we were pleased to observe, was present as usual, and appeared to have quite recovered from his recent illness.

DECORATIVE FRUIT CLASSES.

The Shrewsbury shows have a reputation for the extent and quality of the fruit exhibits, and the first class in this section is justly allotted to the decorated fruit tables. These always represent the highest efforts of some of the best fruit-growers in the country, and the competition is always of the keenest. The schedule requires 30 dishes of ripe fruits, in not fewer than 10 distinct kinds. The exhibitors are allowed to select the varieties, but not more than 14 bunches of Grapes are permitted, and these must be shown in at least four varieties to include both black and white varieties. It is further stipulated that not more than four varieties of any one kind of fruit may be included, nor more than two dishes of one variety. A list of fruits permitted with the maximum number of points each may receive is given in the schedule as follows:—

	No. of Points.
6 Apples	7
9 Apricots	6
50 Cherries (about)	5
9 Figs	7

Grapes are pointed as in class for 12 bunches.

1 Melon (each fruit)	8
8 Nectarines	8
8 Peaches	8
6 Pears	8
12 Plums	6
50 Strawberries (about)	6

Any kind of fruit not mentioned above to receive a maximum of six points. Each collection

may be decorated with flowering and foliage plants, the points for these being beauty of flower and foliage 6, and general arrangement for effect 6. The 1st prize consists of a silver champion cup, valued at 25 guineas, and £20 in cash, the cup to become the property of any competitor who wins it three times (not necessarily in succession). The exhibits numbered four, one less than last year, and all the exhibitors are to be congratulated on their splendid produce. It required a critical observation on the part of the judges to determine the merits of the respective displays, and judging was not completed until 12.30. The 1st prize was awarded to the Duke of WESTMINSTER, Eaton Hall (gr. Mr. N. F. Barnes); having won the cup on two previous occasions, it becomes his absolute property. In the opinion of many the collection was one of the finest ever shown at a Shrewsbury exhibition. The Grapes included one of the best bunches in the show, a superb example of Muscat of Alexandria, shapely, large in berry, and bearing fine colour. Madresfield Court was also shapely and beautifully finished. Other choice dishes were Nectarine Humboldt, Plum Transparent Gage, Peach Royal George, Apples Cox's Orange Pippin (a splendid dish of this superb variety), and Gascoyne's Scarlet Seedling (the fruits being magnificently coloured), Melon Scarlet Flesh, Fig Brown Turkey, and Morello Cherries.

The dishes were as follows, and the number of points obtained for each dish is appended:—
Apples: Cox's Orange Pippin, 6½; Emperor Alexander, 6; Gascoyne's Scarlet Seedling, 6; Cox's Orange Pippin, 6½. Cherries, 4. Figs, 6. Grapes: Muscat of Alexandria, 9½, 9, 9½; Chasselas Napoleon, 5½, 7; Appley Towers, 7½, 8½, 8, 8½; Madresfield Court, 8, 8½, 8, 8½. Melon, 8, 6, 7, 7. Nectarines: Humboldt, 7, 7; Pineapple, 7½. Peaches: Belle Baucé, 7; Dymond, 7; Royal George, 7½. Pears: Doyenne du commerce, 7; Marguerite Marillat, 7½; Triomphe de Vienne, 7; Marguerite Marillat, 6½. Plums: Transparent Gage, 5. Beauty of flowers and foliage, 6. General arrangement for effect, 5½. Total number of points awarded, 278½. The 2nd prize was won by the Earl of HARRINGTON, Elvaston Castle (gr. Mr. J. H. Goodacre), who was awarded 258½ points. Apples gained 21½ out of a possible 28 points, and Grapes 120½ out of a possible 143. Ribston Pippin was the best Apple, gaining six points, the next best dish being Peasgood's Nonesuch, which obtained 5½ points. The finest Melon was a fruit of Hero of Lockinge; Pineapple and Humboldt were the choicest Nectarines; Thomas Rivers, the best Peach; and Souvenir du Congrès and Williams's Bon Chrétien the best Pears. 3rd, J. H. DRAKE, Esq., Market Rasen (gr. Mr. W. Parker), with 238½ points. Apples of exceptional size were shown in this collection: his fruits of Cox's Orange Pippin, which were awarded the maximum number of points, must have weighed half a pound apiece. 4th, Lady HENRY SOMERSET, Ledbury (gr. Mr. G. Mullins).

COLLECTIONS OF FRUITS.

There were two classes for collections of fruits, the more important being for 12 dishes. The conditions of the schedule in the larger class required 12 distinct varieties in not fewer than nine kinds, and not more than two varieties of a kind. Black and White Grapes were regarded as distinct kinds, and two bunches of each variety constituted a dish. Each collection was required to be decorated, for which separate prizes were offered. There were five exhibits compared with seven last year. The quality, however, was superior to last season. The premier prize was awarded to the Duke of NEWCASTLE, Workop (gr. Mr. S. Barker). The dishes were Humboldt Nectarines, Dymond Peaches, Ribston Pippin Apples, Brown Turkey Fig, Transparent Gage, Triomphe de Vienne and Souvenir du Congrès Pears, Sut-

ton's Scarlet and yellow-skinned Seedling Melons, and Black Hamburg, Muscat of Alexandria and Madresfield Court Grapes. Taking them in detail the Grapes were excellent, the two bunches of Madresfield Court being almost perfect, splendidly coloured, well matched, and with heavy bloom, denoting high finish. The bunches of Black Hamburgs were large, and the berries well developed; one being especially well finished. The berries of Muscat of Alexandria were small, but of a rich, amber colour, and in the best condition for the table. The dish of Triomphe de Vienne Pear was outstanding amongst the other kinds, the fruits being of magnificent quality. Dymond Peaches and Transparent Gages left little to be desired, whilst the Apples were also very good. The 2nd prize for decoration was awarded to this exhibit. The 2nd prize collection of fruit was shown by Lord BIDLPH, Ledbury Park (gr. Mr. H. Cotton). His Gros Maroc Grapes were a feature, but the bunches of Muscat of Alexandria were small and unripe. Madresfield Court was moderately good, and Duke of Buccleuch fine of berry, but the bunches none too shapely. Pineapple Nectarines were splendid, being large, and coloured to a high degree. Brown Turkey Figs, Souvenir du Congrès Pears, and Bellegarde Peaches were also very choice fruits. Besides these were Kirke's Plums, a Seedling Melon, and Lady Sudeley Apples. The 1st prize for decoration was awarded to this group, the subjects employed being pink Carnations, Lilium lancifolium and Francoa ramosa, with suitable grasses and greenery. 3rd, Mrs. F. NEED, Great Malvern (gr. Mr. J. Jones), who showed splendid Grapes of Appley Towers and heavy bunches of Gros Maroc. The bunches of Muscat of Alexandria were mediocre, and unevenly matched. Brown Turkey Figs were specially good, and Peaches and Nectarines very highly coloured. 4th, Lord BELPER, Derby (gr. Mr. W. H. Cooke).

There were six entries in the class for nine dishes, double the number of last year. The 1st prize was won by Capt. HEYWOOD LONSDALE, Shavington Hall (gr. Mr. J. Mills), whose fruit was on the small side, but of splendid quality, including high finish. The Grapes were Madresfield Court and Muscat of Alexandria, of which the black variety was the better. Allington Pippin Apples were large and highly coloured, with a good bloom; a good dish of Nectarine Peach, a seedling Melon, Pear Marguerite Marillat, rather small Nectarines of Pitmaston Orange and Stanwick Elrue varieties, and moderate Peaches of Bellegarde variety completed the collection. The 2nd prize was awarded to Mrs. SWANN, Halston Hall (gr. Mr. C. Roberts). Melons were good in this exhibit. Black Hamburg Grapes possessed extra large berries, and Buckland Sweet-water exhibited a fine amber colour, but Lord Napier Nectarines were over-ripe and bruised, whilst Dr. Jules Guyot Pears were inferior. There was an excellent dish of Noblesse Peach. 3rd, A. H. HEBER PERCY, Esq., Hodnet (gr. Mr. W. Catt), with good produce, stone fruits being of splendid quality, and Grapes being his weakest dish. 4th, Col. ISAACSON, West Felton (gr. Mr. W. Willidge). The prizes for decorations in this class were awarded as follows: 1st, A. H. HEBER PERCY, Esq., Hodnet (gr. Mr. W. Catt); 2nd, Mrs. SWANN, Halston Hall (gr. Mr. C. Roberts).

GRAPES.

Twelve bunches of Grapes in four or more distinct varieties, but not more than four bunches of any one variety. The bunches were to be staged on boards and the whole arranged on a table space measuring 8 feet by 4 feet 6 inches, in two tiers 2 feet 3 inches wide. Each bunch was to be judged on its individual merits and the points awarded marked on cards and placed on the tables after the judging was finished.

There were ten exhibits, compared with six last year, and the general quality of the Grapes was good, although not exceptional. In a keen

competition the 1st prize was awarded to the Duke of NEWCASTLE, Worksoy. This exhibitor gained 101 points, awarded as follows:—

No. of Bunch.	Variety of Grape.	Points Awarded.	Possible No. of Points.
1	Muscat Hamburg	7	10
2	Muscat of Alexandria	8½	11
3	Madresfield Court	9	10
4	Black Hamburg	9	10
5	Muscat of Alexandria	8½	11
6	Muscat Hamburg	8	10
7	Muscat Hamburg	8	10
8	Muscat of Alexandria	9	11
9	Madresfield Court	8½	10
10	Madresfield Court	8½	10
11	Muscat of Alexandria	8½	11
12	Madresfield Court	8½	10
Totals		101	124

It will be seen that no bunch was awarded the maximum number of points; the Madresfield Court and Black Hamburg varieties were the best, and generally the black Grapes were the finest, Muscat of Alexandria, although well finished in berry, being unexceptional in size of bunch or berry. Madresfield Court was splendid in quality, and was only lacking in size of bunch. The 1st prize for decoration was also awarded to this exhibit.

Only half a point separated the 2nd prize exhibit, which included much larger bunches, but less perfectly finished. The exhibitor was Lord ROWALLAN, Rowallan, Ayr (gr. Mr. J. Dixon). The fruits of Muscat of Alexandria were green, but the Muscat Hamburg were splendid, and one bunch was awarded the maximum number of points. This splendid bunch was the subject of general comment. There was a companion bunch, but this was less perfectly finished, although equally large. Madresfield Court was excellent, and the fruits only needed a little longer time for perfect ripening.

No. of Bunch.	Variety of Grape.	Points Awarded.	Possible No. of Points.
1	Muscat Hamburg	6½	10
2	Muscat of Alexandria	8	11
3	Black Hamburg	8	10
4	Madresfield Court	8½	10
5	Muscat of Alexandria	7½	11
6	Muscat Hamburg	8½	10
7	Madresfield Court	8½	10
8	Black Hamburg	9	10
9	Black Hamburg	8½	10
10	Muscat of Alexandria	8½	11
11	Madresfield Court	9	10
12	Muscat Hamburg	10	10
Totals		100½	123

The Earl of HARRINGTON, Elvaston Castle (gr. Mr. J. H. Goodacre), who gained the 3rd prize, was awarded 99 points. This exhibitor showed Black Hamburg uniformly well and gained 27 points out of a possible 30 for this variety. 4th, J. H. DRAKES, Esq., Market Rasen (gr. Mr. W. Parker). 5th, Miss WEBB, Newstead Abbey (gr. Mr. T. Ireland). 6th, Lord BELPER, Derby (gr. Mr. W. H. Cooke). The 2nd prize for decoration was awarded to Miss WEBB, Newstead Abbey (gr. Mr. T. Ireland).

Collection of four bunches.—There were four entries in this class, the 1st prize being awarded to the largest bunches, shown by Lord HARLECH, Brogyntyn (gr. Mr. T. Lambert). Muscat of Alexandria were long and tapering and Madresfield Court heavy, but none too shapely and the berries rather small. The 2nd prize was awarded to C. TANYE, Esq., Knowle (gr. Mr. W. Wilkins), whose bunches were large but unripe, the berries of Madresfield Court being quite red. 3rd, Lord TREVOR, Brynkinalt, Chirk (gr. Mr. W. Dawes), whose bunches were quite ripe but small.

The following classes were for two bunches of one variety:—

Black Hamburg.—This popular Grape was shown by six exhibitors. The Duke of NEWCASTLE had bunches of good average quality, and they obtained the 1st prize. The 2nd prize was awarded to the Earl of HARRINGTON (gr. Mr. J. H. Goodacre) for an almost companion pair of bunches to the Duke of NEWCASTLE'S. 3rd, Col. FRANCE HAYHURST, Middlewick (gr. Mr. A. H. Hall).

The 1st prize in the class for a single bunch of Black Hamburg was won by Mr. DRAKES (gr. Mr. W. Parker).

Black Muscat varieties.—The 1st prize in this class was awarded to the variety Madresfield Court, shown by Col. FRANCE HAYHURST, Middlewick (gr. Mr. A. H. Hall), the bunches being of average size and very deep in colour. 2nd, J. DRAKES, Esq., with larger bunches of the same variety, having less perfectly ripened berries. 3rd, Duke of NEWCASTLE, Worksoy (gr. Mr. S. Barker), with Muscat Hamburg.

Madresfield Court.—It was an easy matter to select the 1st prize bunches in the class for this popular Grape, those shown by Col. FRANCE HAYHURST (gr. Mr. A. H. Hall) being easily the best. The 2nd prize was awarded to the Duke of NEWCASTLE (gr. Mr. S. Barker), for a well-matched pair of bunches, perfect in berry, but on the small side. 3rd, Mr. W. H. FAULKNER, West Kirby.

Black Alicante.—There were six exhibits of this variety, and again Col. HAYHURST won the 1st prize, although he had a keen rival in Mr. DRAKES, finish of berry being the deciding factor. The Duke of NEWCASTLE, Worksoy (gr. Mr. S. Barker), was placed 3rd.

Any other Black Grape.—There were seven entries forthcoming in this class, and here Miss WEBB, Newstead Abbey (gr. Mr. T. Ireland) excelled with bunches of the large variety Barbarossa, sometimes known as Gros Guillaume; 2nd, Mr. DRAKES, with Black Alicante; 3rd, Duke of NEWCASTLE, with Gros Colman.

Muscat of Alexandria.—This class produced a good contest amongst nine competitors, but no exhibit was finer than might be expected in such a favourable season. The pair of bunches exhibited by the Duke of WESTMINSTER were decidedly good, being well matched, and possessing berries of good colour. The 1st prize was awarded for these, the 2nd prize being won by Mr. J. DRAKES. The best single bunch of Muscat of Alexandria was also shown by the Duke of WESTMINSTER, and Mr. DRAKES was 2nd.

Any other White Grape.—In a moderate competition the 1st prize was won by J. BUCHAN, Esq., Huyton (gr. Mr. W. Oldham), with the variety Buckland Sweetwater; 2nd, G. A. GIBBS, Esq., M.P., Bourtton (gr. Mr. Wilkinson), with the same variety.

Heaviest Bunch of Grapes.—The Duke of NEWCASTLE won the 1st prize in this class with a bunch weighing 7 lbs. The variety was not named, but it was apparently Barbarossa. 2nd, Col. FRANCE HAYHURST, with a bunch of Black Alicante, weighing 5½ lbs.

LOCAL GRAPES CLASSES.

There were five classes for Grapes cultivated in the county of Shropshire. The awards were made as follows: **Black Hamburg.** 1st, Captain HEYWOOD LONSDALE, Shavington Hall (gr. Mr. J. Mills); 2nd, Col. M. ISACSON, West Felton (gr. Mr. W. Willdig). **Madresfield Court.** 1st, Capt. HAYWOOD LONSDALE; 2nd, Lord HARLECH, Brogyntyn (gr. Mr. T. Lambert). **Any other variety of Black Grape.** 1st, Lord HARLECH, with Alnwick Seedling; 2nd, Mrs. F. ALDERSON, Oswestry (gr. Mr. G. Davies), with Black Hamburg. **Muscat of Alexandria.** 1st, Lord HARLECH; 2nd, Capt. HEYWOOD LONSDALE. **Any other variety of white Grape.** Mrs. F. ALDERSON, Oswestry (gr. Mr. G. Davies), won the 1st prize in this class with Buckland Sweetwater.

OTHER KINDS OF FRUIT.

Peaches.—These fruits, also Nectarines, were of exceptionally high colour. The largest fruits of Peaches, shown by Sir C. A. SMITH, Bart., Bangor (gr. Mr. H. Weaver), were awarded the 1st prize, the variety being unnamed, but it was apparently Bellegrape. 2nd, Barrington, shown by Duke of WESTMINSTER. There were 12 competitors in this class.

Nectarines.—Amongst 11 competitors, the Duke of WESTMINSTER won the premier prize with magnificent fruits of Pineapple. 2nd, Lady HENRY SOMERSET with the same variety.

Apricots.—In a season of great scarcity of these fruits it was not surprising to find only two exhibits. The 1st prize was awarded to Lord HARLECH for fruits below the average quality.

Melons.—There were 13 green-fleshed and 15 scarlet-fleshed Melons. The best of the former type was shown by W. J. LEGGE, Esq., Madeley (gr. Mr. J. Stalker), and of the latter by Col. CORNWALLIS WEST, Ruthin (gr. Mr. H. Forder); in both cases eating quality was the only consideration. The best white-fleshed Melon was shown by Lord BELPER, Derby (gr. Mr. W. H. Cooke).

Plums.—The best Gage Plums were Transparent Gage, shown by the Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson), the best Yellow Plums, Washington, shown by the Marquis of NORTHAMPTON, Castle Abbey (gr. Mr. A. R. Searle); and the best purple or red Plums, Victoria, shown by Dr. RAMBAUT, Bicton Heath (gr. Mr. Jones).

Cherries.—Amongst eight dishes of Cherries, all of the Morello type, the best was shown by Mr. W. H. FAULKNER, West Kirby.

Six dishes of hardy fruits.—This class and five other classes for fruits were restricted to growers in the county of Shropshire. The 1st prize for six dishes was won by Mrs. F. ALDERSON, Oswestry (gr. Mr. G. Davies), who showed Morello Cherries, White Currants, Jargonelle Pears, Lane's Prince Albert Apples, and Gooseberries.

GROUPS OF PLANTS.

On the whole, we must confess to a feeling of disappointment with the group classes. There was too strong a family likeness in the exhibits shown in the principal class. In each case there was practically the same archway at the back. The body of the group consisted of raised Crotons—fine plants, triumphs of cultural skill—rising from a groundwork of stove and greenhouse plants. Whilst the style of arrangement in one instance would be very pleasing and would command attention, yet when repeated, with but slight variations, three or four times, it fails to please. The new group class, first included last year, which permits the use of cut flowers of any kind and requires a rockery, pool of water, &c., was not strongly contested. As this style of grouping should be as different as possible from the older-established method of arrangement, larger pools of water would probably be advantageous.

Messrs. J. CYPHER & SONS, Cheltenham, exhibited the best group of miscellaneous plants in and out of bloom, arranged to produce the best effect, and occupying a space of 250 square feet. For brilliance of colour, richness of foliage and tasteful arrangement it would be difficult to imagine anything superior to this beautiful group. Splendid, single-stemmed Codiums, bearing perfect leaves of rich colour and graceful form, rose at studied, yet informal, intervals. Cork-covered stands were planted with just the right numbers of less showy plants as Ferns, which served as an admirable foil to the tropical colouring. In the groundwork of bright foliage, and cool, green Ferns, were intermingled spikes of Cattleyas, whilst sprays of Oncidiums added lightness and grace. At the background a nearly flat-topped archway, composed of virgin cork, had all the appearance of antiquity. Trails of Vitis terebinthifolia variegata drooped gracefully in company with a few medium-sized Codiums. At the very back a fine Seaforthia elegans added a dignity, and the arched leaves served to render this charming group complete and finely balanced. 2nd, Sir G. H. KENDRICK, Whetstone, Edgbaston (gr. Mr. Macdonald), with a group of finely-grown plants of very similar style of arrangement to the 1st prize exhibit. Here the raised plants at the back were too tall, too stiff, and somewhat obstructed the view. In looking at this display of splendid plants one felt a strong desire to be able to stand 15 to 20 feet away, from which standpoint the effect would have been admirable. At the back a fan Palm was very ornamental. The tall Codiums were exceedingly fine and highly coloured. Towards the back, half-a-dozen plants of Ixora Duffii with immense trusses of bloom supplied very rich colour. The margin of the group was nicely broken, and composed of suitable plants. 3rd, Mr. W. R. MANNING, Dudley. This was a graceful and nicely-balanced group, arranged in the usual fashion. As compared with the superior exhibits, this collection lacked colour. Mr. W. VAUSE, Leamington, staged a group that contained many charming and well-grown plants, and so impressed the judges as to receive an extra award.

The new class of last year was for a group of hardy herbaceous and perennial plants and flowers,

with background of decorative plants, Bamboos, &c., with rocky pool of water, Nymphaeas, water plants, &c., arranged for natural effect; cut flowers allowed. To occupy a space not exceeding 250 square feet. Two exhibits were staged; others were entered, but, through the railway strike, these latter were not forthcoming. The 1st prize was awarded to Messrs. GUNN & SONS, Olton. The motif of this striking collection was a small pool of Nymphaeas, bounded in front with a narrow, skilfully-planted rockery, flanked by tall Liliums, and backed with brightly-coloured flowers, rising to graceful Bamboos. The frontal rockery, which contained suitable plants, looked as though it had been lifted from some old garden and placed in position undisturbed. Liliums, chiefly *L. auratum* and *L. speciosum rubrum*, and *Helenium* were the principal flowering plants used. These, arranged in bold masses, arrested attention, and the Japanese species heavily scented the air. 2nd, Mr. SWANN, Halston Hall. Though the general scheme of this collection was good, yet too much material was employed in its execution, and it lacked brightness. If it could have been arranged out-of-doors during the hot weather we have just experienced, the cool greenness would have been highly appreciated, but the dull canvas roof of the tent required bright colours.

There were half-a-dozen groups in the country class. For the most part these were arranged on the same lines as in the open class, and in a few instances more skill was displayed. Smaller and lighter plants were so disposed as not to obstruct the vision, the 1st-prize arrangement being well balanced and attractive, containing well-grown plants. The exhibitor was Mr. HOWSON, Market Drayton (gr. Mr. Townsend); 2nd, Mr. BURD, Shrewsbury; 3rd, Mrs. SWANN, Shrewsbury. The best six stove or greenhouse plants were shown by Lord HARLEIGH, Ixora Duffii, Gloriosa superba, and Allamanda Schottii being his best specimens; 2nd, Mr. J. FARRANT, Shrewsbury.

In the class for a collection of rock and Alpine plants, arranged for effect, Mr. J. R. HAYES, Keswick, won the 1st prize. This collection of rock and Alpine plants was very refreshing after the arrangements we have become accustomed to at the London shows. Mr. HAYES abandoned the conventional dabs of sandstone or rock, and nicely arranged his plants amongst small pieces of cork. The whole effect was very pleasing. Such arrangements on stagings had far better be frankly artificial rather than attempted natural effects. Many Ericaceae were shown full of flower, such as *E. Mackaili plena*, *E. cinerea alba*, *E. vulgaris rigida*, and *E. Alportii*. 2nd, Messrs. CALDWELL & SONS, with a similar arrangement but as more lowly plants had been used, a flatness resulted. *Eriogonum pallidum*, *Linaria alpina* rosea, *Veronica rupestris alba*, far superior to the type, and *V. spicata corymbosa* were shown in good form.

SPECIMEN PLANTS.

Messrs. J. CYPHER & SONS, Cheltenham, showed 15 huge plants, which were models of skilful cultivation, and were arranged in an attractive manner. Three tall Palms (*Kentia australis* and *Forsteriana*) occupied the back row, and the remaining plants had their bright colours harmoniously blended. The *Codiaeums* shown were *Countess* and *angustifolium*; these were exceptionally healthy, and the uppermost leaves were almost golden in colour. An immense *Statice profusa* was well set off by *Rondeletia speciosa major*, *Ixora Duffii*, and *Stephanotis floribunda*. Another *Ixora Duffii*, with immense heads of fine flowers, divided the *Stephanotis* from a fine *Clerodendron Balfouri*, and a well-flowered plant of the delightfully-scented *Allamanda grandiflora*. A third *Ixora Duffii*, *Allamanda nobilis*, and a rather smaller *Clerodendron Balfouri* completed this large exhibit. Mr. W. VAUSE, Leamington, won the 2nd prize with a collection that, standing alone, would attract much attention, but here, next to Messrs. Cypher's wonderful plants, it was unfortunately overshadowed. Two fine *Ericas* and a beautiful specimen of *Tabernaemontana* were the pick of the flowering plants.

Messrs. JAMES CYPHER & SONS also secured first place in the class for six stove and greenhouse plants. The most striking specimen was an immense *Statice intermedia*. *Rondeletia speciosa major* was well flowered, though a trifle

too closely tied; but as we well know this is a difficult plant to train to any degree of grace. Two plants of *Ixora Duffii* carried many heads of richly-coloured flowers. *Clerodendron Balfouri* was a perfect plant of its class, but some of the flowers of *Allamanda nobilis* were fading. 2nd, Mr. W. VAUSE, Leamington. *Bougainvillea glabra*, *Rondeletia speciosa major*, *Allamanda nobilis*, *Statice intermedia*, *Erica macabiana* and *Codiaeum aigburthense*, of moderate quality, were the best plants in this exhibit. 3rd, Mr. W. R. MANNING, Dudley, with smaller plants; three of *Erica*, two of *Bougainvillea glabra*, and one of *Rondeletia speciosa major*.

Messrs. JAMES CYPHER & SONS again occupied the premier position in the class for 30 stove or greenhouse plants in pots not exceeding 10 inches. The plants, though of necessity of smaller size, were of the same high quality and clean culture that characterised the larger specimens. Some of the plants were miniature duplicates of those in the larger class. Other noteworthy examples were *Chironia ixifera* (a very useful plant for cool greenhouse decoration at the present season); *Ixora regina*, the flowers a pleasing shade of colour; *Codiaeum inimitabilis*, perhaps the most wonderfully-coloured *Croton* in the show, and the graceful-feathered *Phoenix Roebelinii*.

Mr. B. CROMWELL, Hunt's Cross, Liverpool, who was awarded the 3rd prize, showed great taste and no little skill in the arrangement of his exhibit, which more nearly approached Messrs. Cypher's standard than did any other exhibit. In this collection we observed *Dipladenia amabilis*, with its bright-rose-coloured *Allamanda*-shaped flowers. *Alocasia Sanderiana* was also very good, especially when we consider the 2nd prize exhibits in Class 3. We were surprised to find that the judges did not consider this exhibit worthy of the 2nd prize. There was a third competitor.

The first prize for 12 stove or greenhouse plants in pots, not exceeding 15 inches, was awarded to Lord HARLEIGH, Brogntyn (gr. Mr. T. Lambert), for an exceedingly meritorious collection. The *Codiaeums* were graceful and well coloured, and the flowering plants consisted of *Gloriosa superba*, *Acalypha hispida*, *Clerodendron fallax* (a splendid plant), *C. Balfouri*, *Allamanda Hendersonii*, *Ixora Duffii* and *I. Williamsii*. Amongst the four *Codiaeums* shown *C. Andreum* was especially good, whilst a good *Kentia Forsteriana* completed the 12 plants. Mr. W. R. MANNING, with smaller plants, which lacked the freshness and high colour of the foregoing collection, was awarded the 2nd prize.

The best exhibit of four exotic Ferns was shown by Capt. H. LONSDALE, Shavington Hall (gr. Mr. J. Mills). This exhibitor staged large plants of *Polypodium giganteum*, *Adiantum formosum*, *A. cuneatum*, and *A. cardiophyllum*. 2nd, Major NEWELL, Admaston (gr. Mr. W. Ashwood).

For six *Droseras*, the plants in the 1st-prize collection, shown by Lord HARLEIGH, were exceedingly well grown and of high colour, the varieties *Victoria*, *amabilis*, and Lord Wolsley being especially meritorious.

In a good competition, the 1st prize for four *Fuchsias* was won by Mrs. JOWETT; 2nd, Mr. J. MITCHELL, Chatsworth House.

Many large plants, bearing healthy foliage and numerous spikes of flower, were staged in the class for six double-flowered *Pelargoniums*. The 1st prize was won by Mrs. JOWETT, Kingston (gr. Mr. E. Bridge); and the 2nd by Messrs. H. CLIFF & SONS, Abbey Foregate. The best exhibit of six single zonal *Pelargoniums* was shown by Messrs. CLIFF & SONS; 2nd, Mr. HOWELL, Belle Vue. Mr. J. HAMMONDS, Shrewsbury, excelled in the class for six tuberous-rooted *Begonias*, and Col. ROBINSON in that for 12 *Gloxinias*.

A class was provided for 12 plants for table decoration, to be shown in pots not exceeding 6 inches in diameter. All the plants exhibited were well furnished and of good quality, but in several cases their decorative value was depreciated by the colour of the paper used to drape the flower-pots. The prizes were awarded as follows:—1st, Sir G. H. KENDRICK; 2nd, Mr. NUTTALL-PRESCOT; 3rd, Mr. HOWSON, Market Drayton. Lord HARLEIGH exhibited the best group of 12 miscellaneous plants.

CUT FLOWERS.

The 10 classes for florists' arrangements of cut flowers constituted an admirable section of the show. Much taste and skill had been expended upon the different exhibits. The "Bouquets of Flowers" were exceedingly bright and well arranged.

Bride's bouquet—*Statice* and two *Lilies*—*maids' bouquets*—*Chrysanthemums* in a *rotated space*.—1st, Miss E. E. TOWN, Musselburgh. This was a very effective exhibit, in which, however, the tulle and silk ribbons, obtruded rather more than our taste admired. The bride's bouquet was composed entirely of Orchids, chiefly *Phalaenopsis*, while the bridesmaids' bouquets consisted of pink *Carnations*, and in each case were relieved by trails of *Asparagus plumosus*. Mr. W. J. GARNER was placed 2nd with a very similar arrangement, but his *Carnations* lacked the brightness of those in the 1st prize exhibit. 3rd, Mr. J. KNIGHT, Wolverhampton.

The best single bride's bouquet was arranged by Mr. A. ADSHEAD, Gately, Cheshire. It consisted of a shower bouquet of Orchids, *Paucicarpus fragrans*, and *Lily-of-the-Valley*, with a few sprigs of white *Heather* "for luck." 2nd, Mr. GARNER.

The 1st prize for a bouquet of flowers was won by Mr. A. ADSHEAD, who made a very bright and attractive bouquet, using various Orchids (*Cattleyas*, *Oncidiums* and *Cypripediums*), with a few highly-coloured *Croton* leaves and *Asparagus plumosus*. 2nd, Mr. GARNER. This exhibitor showed the best bouquet of flowers, Orchids excluded, with flowers of *Gloriosa Rothschildiana*, and just a few *Croton* leaves and *Asparagus* tastefully blended.

SWEET PEAS.

In some instances these flowers had suffered from the drought and heat, but the leading exhibits were characterised by large flowers of fresh, distinct colours borne on long, strong stalks. The premier class for this popular flower made a very attractive display, although the number of exhibitors was very much smaller than last year. In each case much care and taste had been expended in the arrangements, so that the colours blended harmoniously.

In the class for 12 distinct varieties, Mr. G. L. MOFFATT, Lockbie, was placed 1st. His display was much the best: the chief varieties were *Chas. Foster*, *Edrom Beauty*, *Geo. Herbert* and *Zephyr*. 2nd, Dr. RAMBAUT, Bicton.

Mr. G. L. MOFFATT excelled in the class for six distinct varieties. As in the previous class, this competitor's flowers were large and borne on stout stalks. 2nd, Mr. A. BRYDON. 3rd, Mr. D. WILLIAMS, Aberdeen.

In the class for 18 distinct varieties, Col. CORNWALLIS WEST showed superior flowers to those of other exhibitors. All the sorts shown were well represented. The best were *Dazzler*, *Asta Ohn*, Mrs. Henry Bell, *Menie Christie*, and *Princess Victoria*. 2nd, Mr. W. H. BANKS. These flowers were very fresh, and also well arranged. *Kitty Clive*, Mrs. Routzhan Spencer and *Etta Dyke* are a selection. 3rd, Sir C. A. SMITH, Bangor (gr. Mr. H. Weaver).

ROSES.

Not only has the month of Roses long since passed, but the recent heavy rains following on a long period of drought have much affected the blooms. Consequently, the display of Roses was smaller than usual, and the individual blooms were not of high quality. There was only one competitor in the class for a collection. The exhibitor was Messrs. GUNN & SONS, Olton, who deservedly received the 1st prize. This firm staged a tall, narrow display, chiefly of the single and decorative kinds. The 1st prize in the class for 24 cut Roses was awarded to Messrs. JAS. COCKER & SONS, Aberdeen, who showed *Lyon Rose*, *Auguste Rigokard*, *Caroline Testout*, *Alfred Colomb*, Mrs. J. Laing, and *Earl of Warwick*. 2nd, Messrs. ALEX. DICKSON & SONS, Newtownards. Messrs. J. COCKER & SONS also excelled in the class for 15 cut Roses, Messrs. ALEX. DICKSON & SONS, Newtownards, being again 2nd. Dr. RAMBAUT, Bicton, showed the best 12 blooms.

CARNATIONS.

The 1st prize for a collection of cut tree Carnations was awarded to Mr. C. WATERS, Balcombe, who showed fine flowers intermingled with a judicious amount of green foliage. 2nd, Mr. W. ANGUS, Penicuik. The premier exhibit of a collection of cut Carnations and Picotees was shown by Messrs. M. CAMPBELL, in whose collection the lighter shade predominated. 2nd, Messrs. A. R. BROWN, King's Norton, who had more colour but inferior blooms. In a similar class, from which traders were excluded, Mr. W. H. BANKS was placed 1st. 2nd, Messrs. A. R. BROWN.

Messrs. M. CAMPBELL & SON, High Blantyre, N.B., showed the best 12 vases of Carnations or Picotees. 2nd, Messrs. A. R. BROWN, King's Norton. The best-displayed 12 bunches of stove or greenhouse flowers was exhibited by the Marquis of NORTHAMPTON, Castle Ashby (gr. Mr. A. Searle); a very meritorious collection, the chief flowers were *Hedychium coronarium*, *Cassia corymbosa*, and Carnation Edith Waters. 2nd, Mr. D. NUTTALL.

The 1st prize in a class for 24 bunches of cut flowers was won by Lord HARLEIGH. He showed large bunches of *Ixora Duffii*, *Gloriosa superba*, *Dipladenia* and *Pancratium*. 2nd, Mr. F. BIBBY, Hardwick Grange (gr. Mr. W. Taylor). Mr. A. E. H. OWEN, Berriew (gr. Mr. O. Oakley), excelled in the class for 12 bunches of cut flowers of annuals. *Lavatera trimestris*, *Cosmos* and *Salpiglossis* were shown well. 2nd, Mr. W. H. BANKS. Mr. A. MEYERS, Shrewsbury, who staged immense trusses of distinct-coloured flowers in the class for 12 trusses of single zonal *Pelargoniums*, was awarded the 1st prize. 2nd, Lord HARLEIGH. Mr. A. MEYERS was also 1st for 12 trusses of double and semi-double *Pelargoniums*. 2nd, Capt. H. LONSDALE, Shavington Hall.

HARDY FLOWERS.

Mr. A. BRYDON obtained the 1st prize for 12 bunches of hardy flowers with a very bright stand arranged as a steep, sloping bank. This arrangement, though of a somewhat formal character, displayed the flowers in an admirable manner.

The exhibit of 24 spikes of *Gladioli* which obtained the 1st prize for Messrs. G. MAIR & SONS, Prestwich, was very fine. The spikes were long and stout, and bore large, fresh flowers. 2nd, Mr. A. BRYDON. 3rd, Messrs. HARKNESS & SONS.

The 12 spikes of *Gladioli*, in a class for these flowers, were also of very high merit. Mr. A. BRYDON, Innerleithen, was awarded the 1st prize.

In the county class for *Gladioli*, Lord HARLEIGH was placed 1st.

The best collection of 12 vases of border *Phloxes* was exhibited by Mr. F. EAMES, Frome. 2nd, Mr. R. HAYES, Grasmere.

DAHLIAS.

The 1st prize for a collection of Cactus or Decorative Dahlias arranged on a table having a frontage of 8 feet 6 inches was won by Mr. JOHN WALKER, Nurseryman, Thame. The inclusion of tall bamboo *epergnes* filled with large blooms relieved with suitable greenery gave a note of importance to the group; vases and baskets contained choice specimen flowers. 2nd, Messrs. KEYNES, WILLIAMS & Co., Salisbury. 3rd, Mr. JOHN E. KNIGHT, Wolverhampton.

Mr. WALKER also showed the best collection of 24 blooms of Show or Fancy Dahlias, prominent varieties being Golden Fleece, Dandy, Rev. Gooday, and the Reverend. 2nd, Messrs. H. CLARK & SONS, Rodley, with but slightly inferior blooms. Twelve blooms of Show or Fancy Dahlias were shown by Mr. J. E. WHITE, Bramley. 2nd, Mr. T. JONES, Ruabon.

Messrs. H. CLARK & SONS, Rodley, with a well-filled board of very fresh blooms, won the 1st prize in the class for 24 Cactus Dahlias. 2nd, Messrs. BOTTOMLEY & BURTON, Eland; whilst in the classes for 18 and for 12 Cactus Dahlias, Mr. H. PEERMAN, Nantwich, was awarded the 1st prize.

DECORATED TABLES.

These exhibits were arranged on the side table around one half of the tent. When viewed as a whole it was a rather disappointing class. This was due to the long stretch of white table cloth. There were 16 tables, and, as might be expected, this resulted in the selection of a variety of

flowers. Speaking generally, a somewhat similar style of arrangement permeated the whole of the exhibits and nearly all were lightly arranged. Many competitors employed only one kind of flower, some used Carnations (of pink shades). The small-flowered *Ceropegia* also found favour. Several tables were decorated with Sweet Peas and appropriate foliage; in one case trails of bronze-coloured *Selaginella*. In three instances the flowers of *Gloriosa* entered largely, or wholly, into the scheme, and these were decidedly the brightest and most attractive of the large class. The 1st prize was awarded to Mrs. W. J. GARNER, Altrincham, who had a rather better arrangement than the majority of the competitors. *Gloriosa Rothschildiana* was the flower most largely used.

VEGETABLES.

The Society's premier class was for a collection of 12 dishes, distinct. There were five exhibits, the 1st prize being awarded to the Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson). He showed superb Gladstone Peas, Ailsa Craig Onions, Perfection Tomatoes, Superb Pink Celery, Prizetaker Leeks, Prizewinner Runner Beans, Ideal Potatoes, Intermediate Carrots, Delicacy Cucumbers, and others. A total of 67 points was awarded for the collection. The 2nd prize was won by Mr. J. HUDSON, Leicester, whose collection obtained 52 points. 3rd, Mr. H. ANDREWS, Esq., Toddington Manor (gr. Mr. J. R. Tooley), with 45 points.

In the class for nine dishes, open only to growers in the county of Shropshire, Captain HEYWOOD LONSDALE, Shavington Hall (gr. Mr. J. Mille), was placed 1st for good produce.

There was much competition in the class for six dishes of Potatoes, F. BIBBY, Esq., Hardwick (gr. Mr. W. Taylor), winning the 1st prize with the varieties Admiral, Chapman, Favourite, Britannia, Satisfaction, and Syon House. 2nd, Duke of PORTLAND, who also had clean, handsome tubers.

Robert Sydenham Limited offered prizes in a class for eight dishes. There were four entries, the 1st prize being awarded to Mr. J. H. PUGH, Newtown, who had good Ailsa Craig Onions, Gladstone Peas, Lyon Leeks, Holmes Supreme Tomatoes, Clayworth Prize Celery, Scarlet Intermediate Carrot, Factor Potatoes, and Cauliflowers; 2nd, Rev. J. DAVIES, Stackpole Rectory (gr. Mr. T. Phillips); 3rd, E. DEARIN, Esq., Hay Mills.

Messrs. Sutton & Sons' class was for nine kinds and in this class there were six exhibits. The Duke of PORTLAND, Welbeck Abbey, Workshop (gr. Mr. James Gibson), won the 1st prize easily with superb examples of Ailsa Craig Onions, Prizetaker Leeks, Superb Pink Celery, Autumn Giant Cauliflower, Princess of Wales Tomatoes, Best of All Runner Beans, Centenary Peas, New Intermediate Carrots, and Satisfaction Potatoes; 2nd, H. T. TATHAM, Esq., Elstree (gr. Mr. Gaiger), who had excellent Onions, Celery, Leeks, Potatoes, and Tomatoes; 3rd, Col. CORNWALLIS WEST, Castle Ruthin (gr. Mr. H. Forder).

Messrs. Jas Carter & Co. offered prizes in a class for six dishes, and there were five entries. The 1st prize was won by Mr. G. W. ROBINSON, Burton-on-Trent, who had good Record Onions, Red Giant Runner Beans, Goldfinger Potatoes, Giant Pink Celery, Autumn Giant Cauliflowers, and Model Leeks. Mr. TATHAM was placed 2nd in this class, his fine Onions being of the true Record type. Scarlet Emperor Runner Beans were also good in this collection. 3rd, Mr. A. T. RAINBOW, Northall.

Messrs. Webb & Sons offered prizes for collections of nine dishes. The 1st prize in this class was won by an able exhibitor, Mr. J. HUDSON, Leicester, who had first-rate Ailsa Craig Onions, Emperor Tomatoes, Gladstone Peas, Exhibition Runner Beans, Defiance Intermediate Carrots, and Champion Prize Leeks. The Misses HOWELL, Berriew (gr. Mr. E. Jones), were placed 2nd, and Mr. A. T. RAINBOW 3rd.

Messrs. Clibran & Sons' class was for 12 dishes, but there were only two entries forthcoming. The best from J. R. DIXON NUTTALL, Esq., Prescot (gr. Mr. J. W. Barker), who had the Bell Peas, Ailsa Craig Onions, Clibran's Pink Celery, and King Edward Potatoes. 2nd, Mr. G. EDWARDS, Wynnystay.

Mr. E. Murrell offered prizes in two classes, one for nine dishes, open, and one for six dishes, open, to growers in the county of Salop only. In the large class Mr. T. SANDERSON, Junr., Whittington, was placed 1st, having fine Pink Celery, good Onions, Leeks, Peas, Runner Beans, and

Potatoes. 2nd, Mr. J. H. PUGH, who had capital Peas, Turnips, Celery, and Carrots. 3rd, CRAWFORD LOGAN, Esq., Overley Hall (gr. Mr. H. Turner). In the smaller class Mr. SANDERSON was again placed 1st, G. MITCHELL, Esq., Shrewsbury (gr. Mr. J. Howells), being 2nd.

Messrs. Dickson and Robinson had a class for nine dishes, which brought five entries. The 1st prize was won by Mrs. ARBUTHNOT, Newtown Hall (gr. Mr. R. H. Smith), who exhibited good Premier Onions, Snowden Cauliflowers, Giant Exhibition Runner Beans, Gladstone Peas, Eclipse Potatoes, and white Celery. 2nd, Lord TREVOR, Brynkinalt (gr. Mr. W. Daniel), who showed fine Onions, Leeks, Celery, and Tomatoes. 3rd, the Misses HOWELL.

The Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett), set up a large collection of about 100 dishes of vegetables, the exhibit occupying some 40 feet length of tabling. He had Champion Prize Leeks, white and pink Celeries, Ailsa Craig and Masterpiece Onions, numerous white and coloured Potatoes, red and yellow Tomatoes, Royal Favourite and New Freedom Cucumbers, Prizewinner Carrots, Stourbridge Marrow Peas, Runner and Dwarf French Beans, Beets, Cabbages, Cauliflowers, Lettuce, Marrows, Aubergines, Radishes and many other kinds.

Messrs. CLIBRAN, Altrincham, had, with other products, many good dishes of vegetables, including in great variety Potatoes, Tomatoes, Cucumbers, Carrots, Marrows, numerous Gourds, Beets and other things.

Numerous vegetables were shown by Messrs. SUTTON & SONS, Reading, in their fine group in the fruit tent, including Potatoes, Tomatoes, Beets, Carrots, climbing Beans, Onions, Leeks, Mushrooms and others, all excellent in quality.

Messrs. WEBB & SONS, Wordsley, arranged in front of their flower group a fine selection of vegetables similar to those just named, the samples being of very high excellence. In these cases the products seen were representative of the respective firms' stocks.

NON-COMPETITIVE EXHIBITS.

Messrs. J. VEITCH & SONS, Chelsea, filled one of the recesses in the large plant tent with a collection of choice stove and greenhouse plants, relieved with Orchids in flower. The group, which was arranged on the ground in an arc formation, was much admired. Nepenthes, carrying numbers of pitchers, were raised high on slender stands draped with *Asparagus Sprengeri*. Such fine Orchids as *Miltonia vexillaria*, *Lathrolepis lanceolata*, *Callistopogon*, and *Dominiana*, *Phajm. lanceolatum*, *Phajm. brick-red*, and *Epilodrum vitellinum*, and *Dendrobium pubescens* occupied the middle part of the group. Tall, well-coloured *Codizums*, large-leaved *Anthuriums*, and other fine-foliated tropical plants, such as *Marantas*, *Hedycia*, *Alocasias*, with the huge *Coccoloba pubescens* were tastefully displayed. At the front a pair of *Bertolonias* in several varieties furnished richly-coloured foliage with delicate veins.

Messrs. ED. WEBB & SONS, Wordsley, made a very imposing display with flowers, fruits, and vegetables. Sweet Peas and Lilies were employed largely for decorative effect, the culinary produce being arranged in the foreground. Melons, Tomatoes, Cucumbers, Carrots, Beets, Onions, and other kinds of vegetables were represented by magnificent samples.

KING'S ACRE NURSERIES, LTD., Hereford, showed a large number of pot fruit trees and dishes of hardy fruits. The trees of Apples, Pears, and Plums were very heavily fruited, notable varieties being (Apples) *Golden Wonder*, *Scarlet Wonder*, *Red Astrakhan*, *Queen*, and *Cox's Orange Pippin*, (Pears) *Beurré Diel*, *Nouveau Poiteau*, *Marie Benoist*, and *Beurré Fouquet*, and (Plums) *Grand Duke*, *Mallard*, and *White Magon*. There were also a few Grapes, and Peaches. This firm also showed floral devices.

Messrs. SUTTON & SONS, Reading, put up a magnificent exhibit of flowers, fruits, and vegetables, the general effect being excellent. At either end were large half-circular groups of *Gloxinias* and in the centre a group of Begonias. The tuberosity-rooted section, separating these were choice Beets, Onions, Potatoes, Beans, Carrots, Tomatoes, Marrows, Peas, &c., also large well-flowered Melons.

Messrs. HOBBS, LTD., Dereham, Norfolk, made a pretty exhibit with Roses, having a miniature Fée garden, the groundwork being of H.P. and other large blooms, with standard *Wichuraiana* sorts rising at intervals. Messrs. HOBBS also exhibited a group of Dahlias, that provided one of the finest colour effects in the largest tent. These were mainly of the broad flared type, but a few Cactus flowered varieties were included along the front of the group.

Messrs. BAKERS, Wolverhampton, set up a large collection of *Antirrhinums* in batches of different coloured tints. The plants were very healthy and were very freely flowered; the variety *Dazzler*, of orange-red shade, was remarkably effective. There were 20 distinct sorts. This firm also showed Chinese Asters, but the large arrangement of these against a dark background, and appeared to disadvantage in the dull light.

Ferns in great variety were arranged by Messrs. H. B. MAY & SONS, Upper Edmonton, with their customary skill. Small Polkaferns, such as *P. grande*, the tropical *P. anandine*, *P. atropurpurea*, and *Drynaria quercifolia* were the more prominent plants. Polypodium phymatodes, Adiantum Veitchii, with bright red young fronds; a mass of Nephrolepis Marshalli compacta, the filmy Nephrolepis Neuberghii, Davallia tenuifolia Veitchii, and Pteris Sumatrana are only a few of the many choice kinds shown.

Mr. EDWARD V. LOW, Vale Bridge, Haywards Heath, showed a small exhibit of Orchids, principally of choice Cattleyas and Laelia-Cattleyas, including the beautiful Colwell's Iris, *C. Adula*, and Laelia-Cattleya callistoglossa.

MESSRS. AMO, PERRY, Enfield, Middlesex, set up a quantity of cut flowers of Delphiniums. Besides their well-known standard kinds, La France, a suffring, but attractive mixture of colour tints, Perfection and Pygmalion were much admired. Between their two collections of Delphiniums Messrs. PERRY had a selection of hardy Nymphaeas.

MESSRS. ISAAC HOUSE & SONS, Bristol, occupied one of the recesses of the large plant tent with a fine collection of hardy flowers, Phloxes, Helianthemums, Delphiniums, with Nymphaeas, Lycopodium, Cuscuta, Pampas Grass, &c.

MISS S. S. THOMPSON, Alfred Road, Handsworth, exhibited a group of succulent plants, all in remarkably good health.

Mr. JOHN WALKER, Thame, showed a very large exhibit of Dahlias, in which all types of the flower were represented by good blooms.

Mr. EDWIN MUMFORD, Shrewsbury, showed small but very bright and fresh Roses, also a number of choice Gladioli.

MESSRS. DICKSONS, Chester, exhibited a mixed group of flowers of remarkably choice quality. A large exhibit filled with Lilies, many of which were conspicuous in the centre, and there were other good vases of Lilies, also Roses, Gaillardias, Lupinus, Erigerons, and Delphiniums.

Mr. H. N. HERRING, West Bromwich, had a beautiful tree in the fruit tent, producing a pleasing change of greenery.

Mr. ALBERT MYERS, Shrewsbury, showed Zonal-leaved Pelargoniums and Coleuses, the former being especially good.

MESSRS. JONES & SONS, LTD., Croton Hill Nurseries, Shrewsbury, staged a number of Potons of Nephrolepis and other ferns, also a number of small plants of various kinds of perennial flowers like Carnations, and a few hardy fruits.

MESSRS. JONES & SONS, LTD., Shrewsbury, staged vases of Sweet Peas and Carnations; the Sweet Peas represented most of the varieties in commerce, and the quality, considering the unfavourable season, was remarkably good.

MESSRS. DONNIE & CO., Edinburgh and Mark's Tey, Essex, had a large exhibit of Dahlias and Sweet Peas, the latter being some of the finest in the show: Earl Spencer, orange; Princess Victoria, pink; Syreia Lee, rosy-crimson; Lady of the Orange, Etna Dwyer, white; Mrs. C. W. Broomhead, creamy-yellow with bluish edges; and Florence Nightingale, lavender, are a selection of the choicer varieties.

Many greenhouse Ferns, bordered with Saxifragas, and other hardy plants, from Messrs. P. H. DICKSON, Chester, were in a recess of the tent. A number of tall plants of purple-leaved Cannas relieved the green of the Ferns.

MESSRS. W. & J. BROWN, Stamford, staged a quantity of fresh Roses, which were tastefully arranged with a few well-coloured Codiums, Kochia trichophylla, &c., in small pots. At the back long sprays of Humex elegans, rising from Gaillardias and Liliums, arched gracefully over this fine exhibit.

MESSRS. YOUNG & CO., Cheltenham, staged exceedingly fine Carnations in bold masses, chiefly of one variety.

MESSRS. DICKSON & ROBINSON, Manchester, arranged an attractive table of fine Liliums (*L. longistylum* giganteum, *L. speciosum*, rubrum), many varieties of Carnations, border flowers, and fruits of "Manchester" Melon.

ROBERT SYDENHAM LIMITED, exhibited a very dainty arrangement of Carnations in a number of gilt stands. The flowers of the most harmoniously blended with delicate fronds of Adiantum cuneatum, Smilax, and Asparagus plumosus nanus.

On a side table in one of the large tents Messrs. CHAMBERLAIN & SONS, London, staged a large selection of cut blooms of herbaceous Phloxes, Roses, and various hardy flowers.

A long stretch of staging was filled by Messrs. JARMAN & CO., Chard, with splendid cut flowers and plants. Their new Centaureas of the Sweet Sultan type admirably illustrated the decorative value of these sweet-scented flowers.

Sweet Peas in great numbers were staged by Messrs. W. H. SIMPSON & SONS, Birmingham.

Mr. BOWLER, Shrewsbury, showed ripe fruits of the "Strawberry Raspberry."

A collection of Gladioli with large spikes was exhibited by Messrs. G. MAIR, Prestwich.

Amexes and other hardy flowers were shown by Messrs. FAMES, Frome.

MESSRS. KELWAY & SON, Langport, exhibited a large collection of Gladioli.

Roses were shown by Messrs. ALEX. DICKSON, Newtownards.

Mr. W. L. PATTISON, Shrewsbury, arranged in small stands, in the form of sprays on a sloping black-clothed board, a surprising variety of Pansy and Viola flowers.

MESSRS. HARKNESS & SONS, Bedale, staged Gladioli and various other flowers.

Stout stems of Tomatos (Fonthill and Devonia), bearing long clusters of ripe fruits, were set up by Messrs. ISAAC HOUSE & SONS, Bristol.

MESSRS. CALDWELL & SONS, Knutsford, arranged a collection of hardy herbaceous flowers.

MESSRS. ALANBY MARSHALL JONES, Malpas, had a lightly-arranged collection of cut flowers, including Sweet Peas.

A small but highly meritorious collection of Roses was staged by Messrs. JAS. COCKER & SONS, Aberdeen.

MESSRS. HEND, of Penrith, arranged a representative collection of Sweet Peas with some Pentstemons, &c.

MESSRS. R. HAYES, Grammer, showed perennial Phlox in variety.

Mr. T. HAYES, Keswick, staged an interesting collection of Heathers, fresh from the Highlands, mostly massed in large, flat hampers.

Mr. GIBSON, Bedale, Yorkshire, showed a collection of hardy flowers.

Mr. F. W. JOHNSTON, Manchester, showed floral devices in variety.

AWARDS.

LARGE GOLD MEDALS.

MESSRS. CLIBRANS, Ayrincham, for flowers and vegetables; Messrs. Sutton & Sons, Reading, for vegetables, Melons, and flowers; King's Acire Nurseries, Ltd., for flowers; for fruit trees in pots; Hardy Plants (ger. Mr. E. Beckett) for vegetables; Messrs. J. G. H. Jones & Sons, Ltd., Chelsea, for Orchids, stove and greenhouse plants; Messrs. Webb & Sons, Stourbridge, for flowers and vegetables.

SMALL GOLD MEDALS.

MESSRS. H. B. MAY & SONS, Edmonton, for Ferns; Messrs. Dickson & Robinson, Manchester, for cut flowers; Messrs. DICKSONS, Ltd., Chester for border flowers and floral devices.

SILVER-GILT MEDALS.

MESSRS. I. HOUSE & SON, Westbury-on-Trym, for plants and flowers; Messrs. HIRD BROS., Penrith, for Sweet Peas; Messrs. BAKERS, Wolverhampton, for Antirrhinums and Asters; Messrs. CALDWELL & SONS, Knutsford, for cut flowers; Hobbiehill, Ltd., Bertham, Norfolk, for Roses and Dahlias; Messrs. GUNN & SONS, Olton, for Phloxes, &c.; Mr. AMOS PERRY, Enfield, for Delphiniums and water plants; Messrs. ALEX. DICKSON & SONS, Newtownards, for Roses; Mr. JOHN FORBES, Ltd., Hawick, for hardy flowers; Messrs. DOBBIE & CO., Edinburgh and Marks Tey, for Sweet Peas; Mr. H. N. ELLISON, West Bromwich, for Ferns; Messrs. FRITCHARD & SONS, Cheshirchuck, for Ferns and Alpine plants; Messrs. H. JONES & SONS, Shrewsbury, for Sweet Peas and cut flowers; Messrs. W. & J. BROWN, Stamford and Peterborough, for Roses; Messrs. YOUNG & CO., Cheltenham, for Carnations; Messrs. KELWAY & SON, Langport, for Gladioli.

SILVER MEDALS.

MESSRS. SIMPSON & SONS, for Sweet Peas; Mr. E. MURRELL, for Roses; Mr. A. MYERS, for Pelargoniums; Messrs. JARMAN & CO., Chard, for Dahlias, Sweet Sultans, &c.

BRONZE MEDALS.

Mr. W. L. PATTISON, Shrewsbury, for Violas; Mr. T. R. HAYES, Keswick, for hardy Heathers; Robert Sydenham Limited, Birmingham, for Carnations; Mr. J. W. JOHNSON, Manchester, for floral designs; &c. Messrs. J. GIBSON & CO., Bedale, for herbaceous flowers; Mr. F. FAMES, Frome, for cut flowers; Mr. EDWARD LOW, Haywards Heath, for Orchids; and Messrs. G. MAIR & SON, Prestwich.

ENGLISH ARBORICULTURAL.

AUGUST 14-18.—The 30th annual summer meeting of this society was attended by about 80 members, including Dr. Somerville, Dr. Henry, Sir Hugh Beever, Sir John Keane, Col. Petre, Capt. Sanderson, Mr. H. J. Elwes, Mr. E. Davidson, secretary, and Mr. M. C. Duchesne, local secretary, and many landed proprietors, land agents and leading foresters. Mr. E. E. Frost of Downham, unfortunately absent through illness, has been re-elected president. The Great Central Hotel, London, was made headquarters, and the itinerary included visits to the following estates: Tuesday: Chiseldon, Dromore, and Langley Park. Wednesday: The Chiltern Hills, Wyfold Park, and High Wycombe. Thursday: Ashridge Park, Berkhamsted. Friday: Strathfieldsaye.

At Cliveden the magnificent views through the wood, the lovely terraces, the marble fountain, and the finely-figured sarcophagi which adorn the lawn, brought with other valuables from Pompei, were of great interest, as also were the cross-sections of trees, one the Giant Sequoia of California—the annual rings of which numbered 867—its diameter being 16 feet; the other a fossilised tree mounted as a table and polished.

Dromore, with its famous Pinetum and woods, afforded ample opportunities for measuring instruments and noteworthy; timber trees of the best, as well as ornamental trees, abound. The finest Cedar avenue in the country is at Dromore, whilst Larch towering to the height of 130 feet were planted, we were told, less than 100 years ago. Some of the principal trees are Pinus Pallasiana, 98 feet; *P. Laricio*, 97 feet; *P.*

ponderosa, 99 feet; *P. rigida*, 84 feet; *P. Lamberiana*, 85 feet; *P. insignis*, 77 feet, and *P. monticola*, 70 feet. An interesting but rarely seen tree was *Larix microcarpa*, a tree esteemed in America for its hard timber and resinous quality. One of the rarest trees in this country, too, is Tsuga Brunoniensis, planted in 1847, and called the Hemlock of the Himalayas. It may be of interest to gardeners to know that Gauthieria Shallon here grows luxuriantly under a fairly dense canopy of Beech.

At East Burnham Park the society was entertained by Mr. Harry J. Veitch at lunch. Here the gardens, though suffering much from the prolonged drought, afforded the company great pleasure, particularly the very pretty water garden.

Langley Park was next visited, and the available time was fully occupied viewing some very fine old Scotch Firs in the Black Park. The Pinetum, planted in 1887, contains some very vigorous and shapely specimens of *Abies nobilis*, *A. grandis*, *Picea orientalis*, *Pinus Strobus*, *P. excelsa*, &c., and a host of good trees throughout the woods. In the gardens specimen Bambos, particularly good—especially *Arundinaria nitida*, with a spread of 21 feet, and a good collection of Himalayan Rhododendrons is being formed. Several fine plants of *Chamaecyparis*, planted out permanently, are in capital condition, also well-grown and coloured specimens of *Cupressus Lawsoniana lutea*. On a wall is a *Wistaria sinensis* laden with fruit—a tribute to the sunny season. A Cedar of Lebanon is reputed to cover the largest area of any known tree in this county, it is 150 yards in circumference, and near it is a very marked instance of successful layering in a common Spruce; several branches of about 1 inch thickness having produced fine trees, which partly surround the parent tree.

High Wycombe, the home of the chair-making industry, claims to have no fewer than 70 factories. Some of these were visited to see the various timber converted, and it was interesting to learn of the extensive foreign demand for the better productions.

The Beech woods on the Chilterns, managed on the selection principle, proved instructive, and on the Wyfold Estate was witnessed the conversion of Beech for chair-making, and the turning of chair legs and the manufacture of tent pegs for Woolwich.

At Ashridge Park a full day's work was thoroughly enjoyed, for, without doubt, the estate holds some of the finest timber in Great Britain. In Messrs. Elwes and Henry's new work, *The Trees of Great Britain and Ireland*, we read: "At Ashridge Park, Bucks., the property of Earl Browlow, are perhaps the most beautiful and best-grown Beeches in all England, not in small numbers, but in thousands." "... The celebrated Queen Beech remains, and though in one or two places it shows slight signs of decay, it may, I hope, live for a century or more, as it is in a fairly sheltered place, and has no large spreading limbs to be torn off by the wind. This extremely perfect and beautiful tree was measured in 1903. We made it as nearly as possible to be 135 feet high, and this is the greatest height I know any deciduous tree, except the Elm, to have attained in Great Britain. Its girth was 12 feet 3 inches, and its bole straight and branchless for about 80 feet." "... But though it is doubtful whether any place in England can boast so many perfect Beech trees as Ashridge, this park contains some of the finest Limes, the largest Horse Chestnuts, and the most thriving and bulky Chestnuts, and in a wood not far off is an Ash which is much the best-grown tree of its species, if not the largest I have seen in England."

The many subjects in the gardens of more than ordinary interest must, for consideration of space, be passed over for the present; a fairly good specimen of the Evergreen Beech, *Fagus betuloides*, may, however, be named, and an Oak planted in her early childhood by Queen Victoria, 1823, which has made rapid growth, measures 13 feet in girth at 4 feet from the ground. One of the park Chestnut trees referred to already has a spread of 108 feet.

At Strathfieldsaye the party was met by the Duke of Wellington, who is keenly interested in the subject of forestry, and who conducted and invited criticism on the young woods, &c. Work is here being carried out on approved lines with due regard to soil, position and market.

The mature trees on the estate are very fine. Among the best examples are *Abies grandis*. Cedars—the best is said to be 110 feet in height and 11 feet 9 inches girth, with a clean bole of about 40 feet—and *Sequoia gigantea*, planted in 1857, 90 feet high.

The *Sequoia* avenue, nearly 400 yards, is very evenly good—height about 50 feet. Then an Elm avenue, about a mile long, is exceedingly fine—the trees probably over 200 years old.

One of the most interesting and rare trees in the grounds is the "Tupelo Tree," *Nyssa bicolor*, a fine piece, desirable for its exquisite autumn colour, and near it a specimen *Liquidambar*, about 45 feet high. *Cupressus thuioides* 35-40 feet high, and with a circumference of about 50 feet, and small plants, which have been out several seasons unprotected, of *Cupressus lusitanica*. An exceedingly fine specimen of *Taxodium distichum*, has a girth of 13 feet about a foot from the ground and about 55 feet in height. *Arbutus*.

SWANAGE HORTICULTURAL.

AUGUST 7.—The annual exhibition of this society took place on the above date in fine weather, the opening ceremony being performed by Sir Daniel Morris, K.C.M.G. The principal prize was the Swanage Coronation Challenge Cup, offered for a collection of nine varieties of vegetables and six varieties of fruit in a class open to growers in the county of Dorset. This prize was won by Mrs. BANKS, Kingston Lacy (gr. Mr. James Hill), who showed fruits of exceptionally fine quality. The 2nd prize in this class was won by Sir RANDOLPH BAKER, Bart., Ranston, Blandford (gr. Mr. A. E. Usher), and the 3rd prize by Mr. W. J. SQUIRE, Longham. The fruit classes contained some excellent exhibits, particularly of Grapes. Sweet Peas and Roses were also shown well. The best group of plants and flowers were exhibited by Mr. W. J. SQUIRE, Longham, who also won the 1st prizes in the classes for (1) Roses, (2) a basket of cut flowers, and (3) Tomatoes. In the open classes Mr. GEORGE MASTERS, Swanage; Mrs. RANDALL, Swanage; Mr. E. MAHAGAN; Mr. KENNETH ANDERSON (gr. Mr. H. W. Holland), and Mr. A. YOUNG were the winners of 1st prizes. The finest collection of vegetables shown by an amateur, for which a Silver Challenge Cup was offered by Messrs. James & Co., High Street, Swanage, was staged by Mr. JAMES STOCKLEY, Herston. Messrs. Sutton & Sons offered prizes in a class for nine bunches of Sweet Peas, the 1st prize being won by Mrs. EARDLEY. In Mr. Henry Eckford's class for Sweet Peas, Mr. A. H. HOLLAND staged a premier collection, and he also excelled in Messrs. Carter & Co.'s class, for six distinct varieties of Sweet Peas. In Robert Sydenham Limited's class for Sweet Peas, Mr. A. G. WILCOCK excelled, and this exhibitor also won the 1st prize in Messrs. Ed. Webb and Sons' class, whilst Mr. R. E. WITT showed the premier collection in Mr. J. Stevenson's class.

NATIONAL VEGETABLE.

TRIAL OF GLOBE BEETROOTS.

A TRIAL of seventeen stocks of Globe or round-rooted varieties of Beet, in conjunction with a much larger one of long-rooted Beets, has been conducted under the auspices of the National Vegetable Society simultaneously on sand at The Times Experimental Station, Sutton Green, Surrey, under the control of Mr. Harry Foster, and on loam at Marsh Farm, Twickenham, under the control of Mr. William Poupert. At Sutton Green the rows were 22 feet long and the varieties were sown in duplicate. At Marsh Farm the rows were single and rather shorter. The sowing was made in both cases early in the month of May, and the seeds germinated well; the seedlings were thinned only moderately. The primary tests were of the roots in form, and of the flesh in colour and fineness of grain. Several roots of each stock were pulled and cut to make the tests complete. After the most careful scrutiny of the roots of both trials, three marks or "Very Highly Commended" were given to the Sutton Globe, from Messrs. Sutton & Sons, Reading; Crimson Globe, from Messrs. Dickson & Robinson, Manchester; Early Globe, from Messrs. Yates, of Evesham; Early Red Globe, from Messrs. Barr & Sons,

Covent Garden; and Blood Red, from Messrs. Hurst & Son, Houndsditch. Two marks or "Highly Commended" were given to Globe Witham Fireball, from Messrs. R. Veitch & Sons, Exeter; Selected Globe, from Messrs. Dobbie & Co., Edinburgh; Deep Blood Red, from Messrs. Alex. Dickson & Sons, Newtownards, County Down; and Crimson Globe, from Messrs. Toogood & Sons, Southampton. With respect to these last four varieties, it is but fair to say that on other soils their flesh may equal in colour those of the first group.

SCOTTISH HORTICULTURAL.

AUGUST 19.—About 70 members of this association, including the president, Mr. Massie, paid a visit to Manderston, the Berwickshire seat of the Honourable Lady Miller, on the above date. On the way from Duns station, where the party arrived at midday, a visit was made to Mr. Malcolm's garden in order to inspect his collections of Sweet Peas. Passing through Duns public park, the members made their way to Manderston, where they were entertained at lunch by Lady Miller, and thereafter under the guidance of Mr. Marshall, the gardener, and Mr. Moir, they made an inspection of the gardens. Lady Miller accompanied the visitors through the flower garden, and pointed out its leading features.

NORTH OF ENGLAND HORTICULTURAL.

In addition to the awards mentioned on p. 140 as having been made at this society's recent exhibition at Harrogate, Silver Cups were awarded by the Royal Horticultural Society to Messrs. Harkness & Sons, Bedale, for Gladioli and herbaceous flowers; Messrs. Artindale & Son, Sheffield, for herbaceous and rock-garden plants, also Carnations, and Messrs. Batchelor & Son, Harrogate, for border plants. R.H.S. Silver-gilt Medals were awarded to Messrs. Charlesworth & Co. for Orchids, and to Messrs. H. B. May & Sons, Edmonton, for Ferns.

DEBATING SOCIETY.

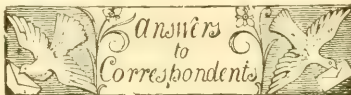
STIRLING & DISTRICT HORTICULTURAL.

The members left on a last excursion for the season on August 12, when a visit was made to Hopetoun, the seat of the Marquis of Linlithgow. The journey, a distance of 30 miles, was made by motor. The gardens and pleasure grounds of this historic place were at their best condition, the most conspicuous feature being the flowering plants massed together in separate colours and kinds in beds and borders.

GARDENING APPOINTMENTS.

Mr. THOMAS SMITH, for 6 years Gardener to Mrs. DALLAS, York, Walmgate Hall, Louth, Lincolnshire, as Gardener to the Right Hon. The Marquis of Ripon, Crombie Court, Kingston Hill, Surrey. (Thanks for donation of 2s. for the R.G.O.F. box.—Eus.)

Mr. FRED W. SCHOFIELD, until recently Foreman in the Landscape Department of Messrs. J. BACKHOUSE & SONS, LTD., York, as Gardener to The Hon. Mrs. FRIDELT DUYVERE, Coleshill House, Highworth, Wiltshire.



ASPIDISTRA AND MARROW: K. C. D., Peterboro'. No disease is present in the Aspidistra leaves. The trouble is due to improper watering; either too little or too much moisture has caused them to turn yellow. It is probable that your Marrow fruits drop when they are about 1½ inch long because they have not been fertilised. Dust the stigmatic surface of each female blossom with the central part of the male flower, holding the latter by the stalk.

CARNATIONS ATTACKED BY MEALY BUG: J. J. T. The insect attacking the roots of your Carnations is the ground mealy bug (*Rhipisia terristris*). Inject bisulphide of carbon in the soil, 4 ounces to the square yard, or, if they are pot plants, take them out, spray the roots lightly, and replace them in the pots, keeping the plants for some days in the dark.

FUNGUS: F. E. S. The fungus is not a Boletus, but a species of Agaric. The specimen sent is too imperfect for us to identify, and we cannot say if it is edible or not. Great caution should be exercised with regard to eating unfamiliar "Mushrooms." You would find Swanton's *Fungi and How to Know Them* of great assistance. A preliminary visit to the Natural History Museum, South Kensington, where there are excellent models and paintings of all the edible species would prove invaluable.

GRAPES: A. M. S. There is no trace of any fungus on the examples of Grapes sent. The injury must be attributed to "scorch" or "scald."

INSECT IN MELON HOUSE: Glen. The hornet-like insect is the giant wood-wasp (*Sirex gigas*), which breeds in old, rotten wood.

INSECTS: J. McC. The insects found on the water Lilies are the caddis worm larvae in the "cases" they form round them. The only remedy is to shake the plants well, when the "cases" will float to the top of the water. Afterwards, either run off the surface water or collect the larvæ mechanically.

MUSHROOMS: H. B. Mushrooms frequently fail to develop because of (1) the beds being insufficiently firm, or (2) the atmospheric conditions being improper. It is essential, and especially during the summer months, that the house or shed in which Mushrooms are grown be kept cool, and damped frequently during the day-time and evening. The roof and walls should be syringed and the paths kept in a moist condition. Light should be excluded, no ventilation permitted, and no fire-heat should, in any case, be employed. It is not necessary to place a covering of any kind over the beds when Mushrooms are grown under these conditions. See that the soil and the other materials of the bed are sufficiently moist when the Mushrooms are developing, and always apply water in a tepid condition.

NAMES OF FRUITS: Mrs. Wheldon. Plum Deniston's Superb.—F. Thompson. The Grape is probably Buckland Sweetwater, although the bunch much resembles Dutch Sweet Water.

NAME OF PLANTS: T. H. C. Probably *Lathyrus montanus*. Send when in flower.—W. B. The varieties of *Codiaeum* (*Croton*) are as follows:—1, B. S. Williams; 2, Rodeckii; 3, Mme. Alfred Bleu Major; 4, Mme. Groult; 5, Mme. Imbert Kochlin; 6, Undulatum.—F. F. T. 1, *Bifrenaria Harrisoniae*; 2, *Maxillaria tenuifolia*; 3, *Oncidium pulchellum*; 4, *Odontoglossum Lindleyanum*; 5, *Brassia verrucosa*; 6, *Lycaste cruenta*.—St. Peter's. Flower quite decayed. Send fresh specimen or description of the colour of the flower and habit of the plant. We will retain the specimen sent.—A. M. Reading. 1, *Hibiscus syriacus* flore pleno; 2, *Bignonia radicans*.

RAMBLER ROSES: E. S. The season has been very unfavourable for strong-growing Roses, and your plants are probably affected by the drought. You might cut out some of the weaker wood. See that the roots are moist, and feed the plants with liquid manure. You will find directions for pruning Roses of this type in an article by *White Rose* printed on p. 141.

ROSE SHOOT SAWFLY: J. C. & S. The insect found in the Rose shoots is the Rose-shoot sawfly (*Poclosoma candidatum*). Nothing can be done but to hand-pick the dying shoots before the grubs escape. They winter in the soil beneath the bushes.

RUNNER BEANS ATTACKED BY FUNGUS: T. V. The Runner Beans sent are just beginning to be attacked by some fungus, which is too immature for identification. Spray the young Beans with liver of sulphur solution (1 ounce dissolved in three gallons of water). If older Beans are sprayed, it is advisable to wash them well with water after cutting.

VINES: Miss E. (Ryde). The cause of the injury to the vines is not apparent on the shoot you send. There is no insect or fungus present. We can only suggest that there has been some error of culture.

Communications Received.—A. D. R.—H. W.—H. M. W. C. A. D.—J. H. A.—R. Lancaster.—A. B. M. L. B.—A. S. J. W. F.—W. B. H.—O. B.—W. B. H.—H. F. Swadlow.—C. T. D.—T. A. W.—J. D.—R. P. B.—A. Reader.—W. H. W.—A. N.—J. B.—R. H.—G. H. E.—J. F.—J. H.—G. H.—O.—G. F.

THE Gardeners' Chronicle

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GRAFT HYBRIDS.

THE production of intermediate or hybrid like forms, as a result of grafting two species together, is a phenomenon which has long excited interest, and the classical examples* of plants to which such an origin has been attributed are familiar, by name at least, to everyone.

In habit, and in shape and size of the leaves and flowers, graft hybrids are generally more or less intermediate between their parent species; in those cases, however, where the two pure species present distinctive features of the epidermis (e.g., hairiness), it is found that the graft hybrid is not intermediate in respect of these characters, but very closely resembles one parent or the other. One striking feature of the graft hybrids demands mention, namely, the fact that they exhibit a more or less constant tendency to produce occasionally organs which show a reversion in every particular to the characters of one or other parent. Such reversions may affect entire shoots or may be confined to single leaves or flowers or even to parts of these organs. The production of reverted organs not uncommonly occurs spontaneously, that is to say, in the absence of any known external stimulus; it may be looked for

with some confidence if the hybrid shoot be wounded or mutilated.

Of the classical cases, the graft hybrids of Bronvaux, between the White Thorn (*Cratægus monogyna*) and the Medlar (*Mespilus germanica*), have a special interest in that two distinct hybrid or intermediate types exist. These two types are represented in two branches which were borne side by side, at the junction between scion and stock, on an old stem of the White Thorn upon which the Medlar had been grafted. One of the types, known as

made, until quite recently, in extending our knowledge of the processes underlying them. Only a very limited number of cases had been recorded which had any substantial claim to be regarded as graft hybrids, and nothing but failure had attended the persistent attempts which had been made to secure a repetition of the distinctive phenomena manifested in these isolated cases. As a consequence, doubts arose as to the accuracy of the accounts in which the origin of the various supposed graft hybrids was described, and



FIG. 76.—*SOLANUM TUBIGENSE*, A PERICLINAL CHIMERA OF *S. LYCOPERSICUM* AND *S. NIGRUM*.

The upper part of the shoot figured shows a reversion to *S. nigrum*, and the middle internode is a constant with *S. angustatum* to the left and *S. tubigenense* to the right. (After Winkler.)

Cratægo-mespilus Dardari, approaches the Medlar more closely, the other (C.-m. J. d'Asnières) is more like the White Thorn. The same tree subsequently produced a third branch, again from the junction of stock and scion, but on the opposite side to that occupied by the first two branches; this third branch proved to be very like the form J. d'Asnières.

In spite of the attention devoted to the phenomena associated with the formation of graft hybrids, little progress had been

the possibility of procuring intermediate or hybrid types through the vegetative process of grafting became a much debated question.

Such was the position when, in 1909, the controversy was at length set at rest by the work of Prof. Winkler of Tübingen, who definitely established the fact that intermediate forms may be produced by a vegetative process.†

* See Winkler, *Beitrag. Deutschen Bot. Ges.*, xvi, 568, and xvii, 1, p. 235; *Zeitschrift f. Botanik*, I., p. 315, and II., p. 1, 1907, 1910.

* For descriptions of these plants the reader may refer to *Parsons' Animals and Plants under Domestication*, vol. 1, p. 413. Apart from Winkler's *Solanum* hybrids, the most important cases, since Darwin's time are the *Cratægo-mespilus* hybrids of Bronvaux described by Noël Sténeger, *Niederländ. Gart.*, Bonn, 1908, p. A30, and Daniel's Pear Quince hybrid (*Ulmus de Hainaut*, xvi, p. 5, 1904). Darwin includes in his account some cases of "infectious chlorosis," which, as Baur has recently shown, appear to be due to the transmission of a virus from the chlorotic to the normal member of the graft.

Winkler found that many of the members of the Solanaceæ and Cappari-daceæ possess in a notable degree the power to form adventitious shoots. Not only are such shoots formed very readily, but their development can be localized at a desired point. If, for instance, a seedling plant of the Tomato be decapitated, and care be taken to remove all the axillary buds, as well as any adventitious buds which may develop in the axils of the leaves, a number of adventitious buds will be produced from the callus which is formed over the cut surface of the stem.

This power to form adventitious buds from the callus of a wound was turned to account by Winkler when he made the experiments which finally led to the production of graft hybrids. The plants selected for experiment were the Tomato (*Solanum Lycopersicum*) and the Black Nightshade (*S. nigrum*). A number of splice, wedge, and saddle grafts was made reciprocally between young plants of these two species. After some weeks, when the union between scion and stock was established, the grafts were cut through transversely so as to expose the newly-joined tissues of the stock and scion. From the callus at the cut surface adventitious shoots were developed, as in the decapitated Tomato seedling.

The majority of these shoots had their origin in tissue appertaining either solely to the scion or solely to the stock, and were, therefore, either pure Nightshade or pure Tomato. But beside shoots which merely reproduce the pure species, Winkler obtained others, which developed upon the line of junction between the tissues of stock and scion, and in which the characters of the two pure species were combined in various ways.

In the simplest cases of this kind, which were also the first to be discovered, the tissues of the two parent species were united side by side, so as to build up a single shoot, of which the one side was Tomato and the other side Nightshade. The double nature of these shoots is made strikingly evident through the contrast between the stiff hairs and the divided leaves of the Tomato and the absence of hairs and the simple leaves of the Nightshade.

It is evident that the growing point of these plants is built up of cells of two kinds; on the one side are cells derived from the Tomato, on the other cells derived from the Nightshade. The leaves and axillary branches, which are developed from tissue derived solely from one of the components, have the characters proper to that component. But other leaves, which are inserted on the line of junction between the two components and are therefore the product of a mixed meristem, show again the two components united side by side, so that one part of the leaf is Tomato and the other Nightshade. Evidently, there is every likelihood that the buds formed in the axils of such "mixed" leaves will themselves be derived from a mixed meristem, and will, therefore, give rise anew to shoots of a mixed character.

To structures of this kind, wherein two kinds of tissue, each pure to its own

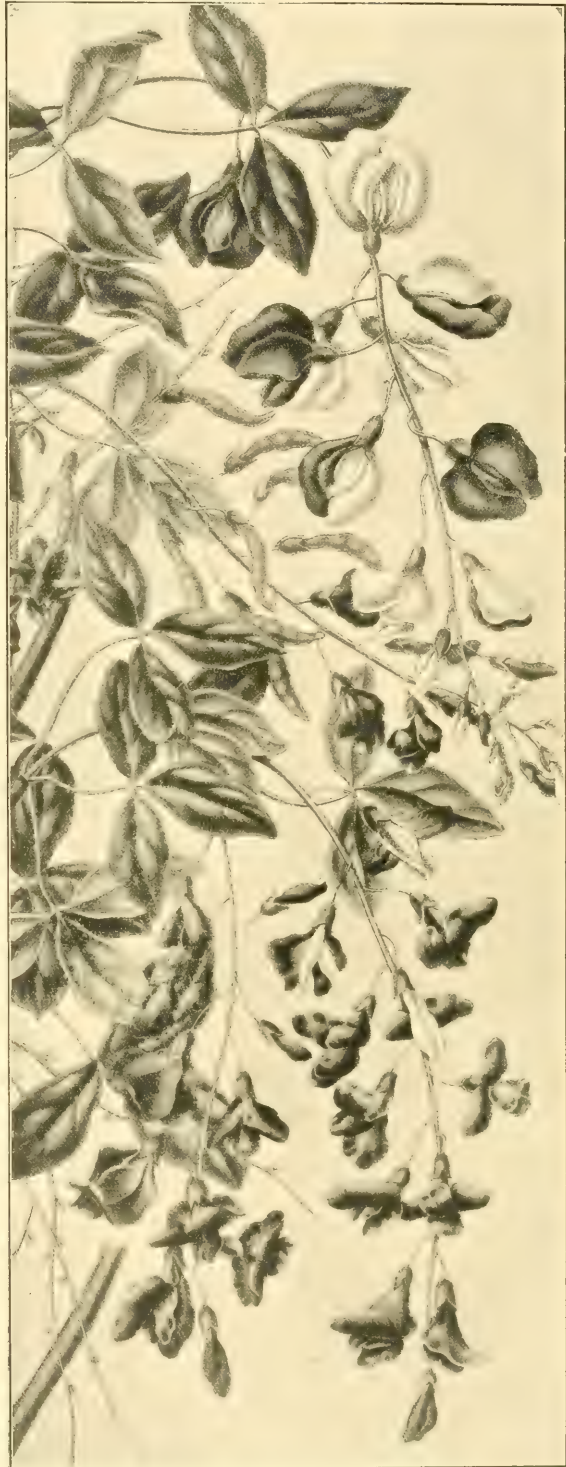


FIG. 77.—FLOWERING SPRAY OF *CYTISUS ADAMI*.

(A graft hybrid produced by budding *Cytisus purpureus* on *Laburnum vulgare*.)

species, are united side by side to form a single shoot, Winkler gave the name of "Chimera."

Continuing his experiments, Winkler subsequently obtained other kinds of adventitious shoots, which were intermediate in form between the Tomato and Nightshade. In all, five distinct types, representing different combinations of the parental characters have now been ob-

parental type, changes from one intermediate type to others may take place; a parallel case to the change which occurred when on one occasion *Cratægo-mespilus* Dardari produced a shoot of *C.-m. J. d'Asnières*. The reversionary structures not uncommonly take the form of chimeras, which often consist of the intermediate type and one of the pure species. It is scarcely necessary to point out the

ORCHID NOTES AND GLEANINGS.

CATASETUM SEEDLINGS.

A REMARKABLE example of the profuse manner in which Orchids from seeds may be raised in a suitable house may be seen in the gardens of J. S. Berghem, Esq., Belsize Court, Hampstead (gr. Mr. H. A. Page). A few months ago Mr. Berghem brought a small collection of native Orchids from Trinidad, among which was a mass of *Catasetum macrocarpum*, bearing several large mature seed capsules. The plants were potted, and in due time the fruits burst and the seeds became distributed, some of them finding their way to the water tank. The result is that on the surface of the pots, the sides, and in every conceivable situation there are strong seedling *Catasetums*, up to 2 or 3 inches in height. *Osmunda* fibre seems to be especially favourable for the germination of the seeds and growth of the young plants.

ANGULOA UNIFLORA EBURNEA.

It is the custom to call the best and largest white *Anguloa*, *A. eburnea*, but a batch in flower in Tracy's Nursery, Twickenham, collected in the locality in Peru, whence the type specimen of the genus named *Anguloa uniflora* Ruiz et Pavon was obtained, shows that it is typical *A. uniflora*. In view of the extreme variability of the species, which is widely distributed, and the inferior quality of the flowers on the plants from some localities, the name *eburnea* might well be added to distinguish the best Peruvian form. Some 50 plants have borne their large, aromatic white flowers for several weeks past, and they are still good. The *Anguloas* are here grown tolerably cool with the *Lycastes*, the house being well shaded. The rare *Anguloa uniflora* *Turneri*, with blush-white flowers, the fine citron-yellow *A. Cliftonii*, which has bright purple markings inside the segments, and several forms of *A. Ruckeri* have recently been in flower in this nursery, and the large, light-yellow flowers of *A. Clowesii* are still making a good display.

VEGETABLES.

WINTER SPINACH.

WINTER Spinach is a most useful vegetable that is highly appreciated in its season. The seeds should be sown about the middle of August or soon afterwards, in ground which has been previously well prepared. They are best sown in shallow drills drawn at about 18 inches apart; make the ground fairly firm by treading before drawing the drills, and see that the soil has been worked into a fine tilth. On very heavy soils it is necessary to throw up ridges about 6 inches high and about 1 foot wide at the top.

The seedlings should be thinned early to about 9 inches apart, the bed kept well hoed, and every endeavour made to promote a sturdy growth.

Slugs are very troublesome to Spinach, and these must be kept in check by frequently dusting the bed lightly with soot, which will also act as a stimulant to the plants if stirred into the soil by the hoe.

The prickly seeded variety is generally recommended for winter use, but I have grown both this and round-seeded or summer Spinach side by side, and find the latter variety equally as good and hardy. In addition to the Spinach, a good bed of Spinach Beet always proves useful, but the seeds of this need to be sown in July. *Wilmot H. Yates, Rotherfield Park Gardens, Alton.*



FIG. 78.—FLOWERING SPRAY OF CYTISUS PURPUREUS.

(This species when budded on *Laburnum vulgare* produced *C. Adami*. See fig. 77.)

tained. We are greatly indebted to Prof. Winkler for permission to reproduce his figure of one of these types (*Solanum tubigenae*, fig. 76).

These plants present features which correspond exactly with those of the earlier known graft hybrids, and they have the same tendency to produce reversions to one or other of the parental types in their lateral organs (see fig. 76). As well as complete reversions to the

complete analogy between such a chimæra and the "partially reverted" shoots so often described in *Cytisus Adami* (fig. 77), &c. The *Solanum* graft hybrids, however, sometimes produce more complex chimæras, and in one case no fewer than five different types—the two pure species and three of the intermediate forms—were combined in a single adventitious shoot. *R. P. Gregory.*

(To be continued.)

THE PRIMULAS OF THE EUROPEAN ALPS.

(Continued from p. 132.)

HYBRIDS.—II.

WHEREVER in the Alps you find two species of *Primula* growing freely, there you may hopefully hunt for their hybrid, so freely do the different species interbreed. *P. minima* heads the list of parents, having, as pollen-parent or seed-parent, produced no fewer than eight named hybrids. Some hills it shares with *P. spectabilis*, some with *P. glutinosa*, some with *P. Clusiana*, some with *P. Wulfeniana*, some with *P. hirsuta*, and one at least with *P. tyrolensis*. And from every one of these associations springs a lovely hybrid, in many cases much easier to grow than its parents, and in all cases possessing *P. minima*'s laudable indifference as to lime or granite. The next in family is *P. Auricula*, with six hybrids; and the third *P. hirsuta*, with five. Hybrids between species in the same subsection are very rare, e.g., *P. hirsuta* × *P. cenisensis*, while certain subsections seem wholly unable to interbreed. There are no crosses between the *Euricularias* and the *Arthriticas*, or *P. minima*, or *P. glutinosa*.

CROSSES OF *PRIMULA AURICULA*.

P. Auricula × *P. carniolica* = *P. venusta* (Host).—A well-known and splendid plant (*P. Jelenkæ* and *P. idriana* of Gusmus), varying between its parents, but differing from *P. Auricula* in having rosy flowers, and from *P. carniolica* in having leaves more or less farinose. This hybrid occurs with its parents in the Idria district occupied by *P. carniolica*. I am quite certain that its citation from Mte. Baldo is owing to a confusion between the elongate forms of *P. spectabilis* (in shady cliff crevices) with *P. carniolica*, whose range is far away to the east. *P. venusta* is a fertile hybrid, yielding further intermediates. In particular, it has fertilised *P. marginata*, which has thus produced the beautiful *P. Marven*, with foliage approaching to that of *P. carniolica*, but with dark-violet flowers.

P. Auricula ciliata × *P. tyrolensis* = *P. obovata* (Huter).—A very remote, rare, and obscure alliance, the proof of which rests only on two specimens from the Belluno Alps.

P. Auricula × *P. integrifolia* = *P. Eschrii* (Brügger) differs from *P. Auricula* in having leaves faintly margined, short pedicels, few-flowered umbels, and long-calyxed, farinose flowers, of a dull red; from *P. integrifolia* in an occasional dentation to the leaves, and in a farinose calyx and bloom. This is a very rare cross from the West Rhaetian Alps. I do not know it.

P. Auricula × *P. pedemontana* = *P. Sendtneri* (Kellerer).—A garden hybrid (the two species do not occur in the same districts) not yet described.

P. Auricula × *P. cenisensis* = *P. discolor* (Leybold : *P. Portæ*, of Huter).—This cross is indefinitely variable between either parent—more or less like *P. Auricula*, more or less like *P. cenisensis*. It is also freely fertile, and its seedlings (crossed again with either of the grand-parents) prolong the range of variety and confusion. However, the intermediacy between *P. Auricula* and *P. cenisensis* remains always recognisable, though this cross is only differentiated from the appalling welter of confusion covered by the name of the next, by the possession of rufous glands on the leaves (which are occasionally narrower than in *P. pubescens*). The flowers are usually purplish, but occasionally of a yellowish-white. *P. discolor* occurs in the southern limestone Alps of Judicaria, but is not common.

P. Auricula × *P. hirsuta* = *P. pubescens* (Jacq.).—But not only has this name also got to cover all the crosses of *P. Auricula* × *P. villosa* as well, and all the crosses of *P. Auricula*

× *P. viscosa* too; but it has also had the following synonyms, every one of which very often appears separately in the same catalogue, and every one of which must be finally discarded:—*P. rhaetica* (Gaud), *P. helvetica* (Donn), *P. alpina* (Schleicher), *P. intermedia* (Van Houtte), *P. Göblii* (Kerner), *P. Arcotis* (Kerner), *P. Kernerii* (Göbl), and *P. Peyritschii* (Stein).

When it is remembered how wide a gulf separates *P. hirsuta* from *P. viscosa*, it will easily be seen that a name which is intended to cover all hybrids of both these species with *P. Auricula* can only be described as a cry of despair. It results that *P. pubescens* is a name even more vast and wild than *Saxifraga aizoon*: there is no analysing this series of hybrids. "More or less" has to be appended to every descriptive detail. Wherever *P. Auricula* occurs with *P. viscosa*, *P. villosa*, or *P. hirsuta*, there their bewildering polymorphic children are sure to be found. In culture, *P. pubescens* is the oldest of all hybrid *Primulas*. Clusius saw it in the rich garden of Dr. J. Aicholtz, at Vienna, about 1580, and understood it to abound in the Enpionette Alps. And *P. pubescens* is still, perhaps, the most important of hybrid garden *Primulas*, for the name covers every florist's "green-edged, Alpine, or border, and such a multiplicity of other forms, too, that the brain reels in contemplation. There are, in particular, two albinos, called by catalogues *P. "nivalis"* and *P. "helvetica"* alba. They are both of them, of course, according to present classification, *P. pubescens* alba. *Ut mihi videtur, absurde*, since the one is much nearer to *P. hirsuta*, and the other to *P. villosa* (in shape of flowers); the form called *P. "nivalis"* being the commoner, and that called *P. helvetica* alba much the more beautiful, taller in the scape, with wider flowers, less serried in the umbel. There is also an absolutely different albino *P. pubescens*, which is typical *P. Auricula* × *P. viscosa* alba. This plant, a very old inhabitant of some north-country gardens, has the habit of *P. viscosa* almost pure, with dense, one-sided bunches of narrow, white flowers, carried on tallish stems, the whole plant tending to grow stalkily out of the ground. Finally, as a small straw to cling to in the maelstrom of confusion—*P. pubescens*—it may be remembered that the hybrid is, by preference, of almost every colour in the rainbow except *Auricula*'s golden-yellow; while it differs always from *P. hirsuta*, *P. villosa*, *P. viscosa* in being less hairy, and also, usually, to a certain extent, farinose in some of its parts. But the name of *P. pubescens* is hopelessly strained and artificial, especially as the primary hybrids are fertile, and fertile again, to the third and fourth generation. There is, for instance, a beautiful violet-flowered *P. decora* (of gardens); it is a distinct enough form of *P. pubescens*, but its seedlings yield only border *Auricularias* in every imaginable colour. *Reginald Farrer*.

(To be continued.)

COLONIAL NOTE.

TROPEOLUM SPECIOSUM.

WHEN in Ireland, a year ago, I observed a plant of *Tropeolum speciosum* which had apparently become naturalised. It was growing in a Thorn hedge in a field near the nursery of Messrs. Reamsbottom & Co., at Geashill, King's County, and had evidently escaped from that establishment. The plant had taken root in the thickest part of the hedge, and was doing remarkably well. When in flower, it made a flaming patch of red, and, being on a hillside, was visible for at least a mile. It would be interesting to know how it got into this position, unless the seed was carried by a bird. I wish it could be induced to grow in this tropical climate. *G. St. C. Feilden, Botanical Station, Tobago, W. Indies.*

THE DEVELOPMENT FUND.

PROMOTION OF AGRICULTURAL RESEARCH AND LOCAL INVESTIGATIONS.

WE have received the following information from the Board of Agriculture and Fisheries, dated August 25, 1911:—

The Board of Agriculture and Fisheries have been in communication with the Development Commissioners with a view to the formulation of a scheme for the promotion of agricultural research and local investigations in England and Wales, and the Treasury, on the recommendation of the Commissioners, have now sanctioned the allocation of funds to be distributed by the Board in accordance with the general principles set out below. The total maximum sum which will be expended when the scheme is in full operation will be about £50,000 per annum.

The scheme provides for—

1. A system of agricultural research which will secure for each group of the problems affecting rural industry a share of attention roughly proportional to its economical importance;
2. The concentration of the scientific work on each group at one institution or at institutions working in combination;
3. Grants for special investigations for which provision may not otherwise be made;
4. The grant of scholarships with a view to the increase of the number of men fully qualified to undertake agricultural research;
5. The carrying out of investigations into problems of local importance, especially those involving the application of modern research to local practice, and the provision of scientific advice for farmers on important technical questions.

SUBJECTS OF RESEARCH.

In making arrangements for the separate investigation, as far as possible, of each group of allied subjects, the Commissioners and the Board have been impressed with the importance of securing continuity in work which is necessarily of considerable duration, and at the same time of providing staffs of specialists and experts who will be permanently engaged on work arising from the investigation of the same group of problems. By this means, concentration and economy of effort will be better secured than it would be if a number of institutions were dealing at the same time with the same group of problems.

It is neither desirable nor possible to prevent all overlapping or duplication of work, but it is obviously necessary to proceed on a plan by which research work subsidised from public funds will not be unnecessarily duplicated. It is also desirable to arrange that each problem shall be undertaken by the institution best fitted to deal with it, and usually by the institution which has specially devoted its attention to problems of an allied nature.

It is also important to avoid the giving of undue attention to one part of the field of agricultural research, to the exclusion of other parts which are of equal scientific and economic importance.

With these considerations in view, it has been arranged that grants should be made for research in the following groups of subjects:—

1. Plant physiology.
2. Plant pathology and mycology.
3. Plant breeding.
4. Fruit growing, including the practical treatment of plant diseases.
5. Plant nutrition and soil problems.
6. Animal nutrition.
7. Animal breeding.
8. Animal pathology.
9. Dairying.
10. Agricultural zoology.
11. Economics of agriculture.

SPECIAL GRANTS FOR RESEARCH.

A sum not exceeding £3,000 per annum will be available for assistance in respect of special

investigations for which provision is not otherwise made.

Grants from this fund will be made on the recommendation of the Board's Advisory Committee on Agricultural Science, who will consider not only whether the proposed investigation is desirable in itself, but whether it could not be better carried out at one of the special research institutions referred to above. The grants will be made from year to year, and will be for one year only in each case.

SCHOLARSHIPS.

In order to secure the services of a number of carefully-trained men for work in connection with the scheme, the Board propose in each of the years 1911, 1912, and 1913 to offer 12 scholarships of the value of £150 per annum, tenable for three years.

It is proposed that candidates for scholarships should be selected by a special committee, representing the institutions under whom the selected candidates will subsequently work. The award of 12 scholarships will be conditional on a sufficient number of thoroughly suitable candidates presenting themselves.

LOCAL ADVICE AND INVESTIGATIONS.

Grants will also be made to certain Universities, University Colleges, and Agricultural Colleges in England and Wales for the purpose of enabling them to supply scientific advice to farmers on important technical questions and to carry out investigations into problems of local interest, which can be more conveniently studied on the spot than at one of the research institutions.

By means of these grants it is hoped to provide an expert staff, possessing both scientific and practical qualifications who will devote themselves to solving difficult local problems, and in other ways endeavour to secure the application of science to practice.

TREES AND SHRUBS.

COLUTEA ARBORESCENS.

THE present interest in the Bladder Senna lies in its very attractive fruits, which, this season, have assumed a much-higher colour than usual. From the planter's point of view, it is satisfactory to know that this deciduous shrub has a very accommodating nature. It does not seem to matter how dry and poor the soil may be, the Bladder Senna will thrive when once it has become established. When we remember that it grows on the ascent to the crater of Mount Vesuvius it is not surprising to find how well the shrubs have withstood the prolonged drought.

On the Continent the leaves were formerly used as a substitute for the true Senna, which is composed of the leaves of several species of Cassia. The seeds, in small doses, are said to excite vomiting. When pressed the very large bladder-shaped fruits burst open with a loud crackling noise, and disclose a row of small seeds, which become ripe towards the middle of September. The pale-green leaves, which are of the character common to the order Leguminosæ, look somewhat small now that the shrubs are loaded with their large seed-vessels.

KOLRUTERIA PANICULATA.

THIS handsome, flowering tree is so rare in gardens generally that it is a pleasant surprise to see an unusually fine specimen. In the Cumberland Road, Kew, a very healthy tree has just completed its flowering, and now bears a great number of its curious, bladder-like fruits. The example under notice is fully 20 feet high, with plenty of rich, green leaves, and is much more shapely than is customary; generally the few specimens to be met with have a straggling habit. This tree is perfectly hardy, and it succeeds well in ordinary garden soil. A. C.

THE FLOWERS OF CHAUCER.

(Concluded from p. 147.)

VALERIAN.

Egrimoigne, valirian, and lunarie.
Prologue of the Chanounes Yeman, III. 32.
See "Cetwall."

VINE.

1. Som time a vine, and grapes white and rede.
Frankelynes Tale, II. 240.
2. Alle her olyvers and vynes eke.
Monkes Tale, III. 188.
3. The foule toode, that may nought endure the soote emel of the vine roote, when it florisith.
Persones Tale, IV. 61.
4. The olive of peace, and eke the dronken vine.
Assembly of Foules, IV. 185.
5. With a boore as grete as ox in stalls,
She made up frete hire corne and vynes alle.
Troilus and Cryseyde, VI. 38.

VIOLET.

1. The Primerose, the violete and the gold.
Court of Love, IV. 183.
2. Ne violete, ne eke perynke.
Romaunt of the Rose, VII. 43.
3. There sprang the violete alle newe.
Ib. 60.

WALNUT

I saugh hym caryn a wyndmelle
Under a wal-note shale.
House of Fame, VI. 236.

Shale is the shell. The Walnut was introduced into England by the Romans, and was probably abundant in Chaucer's time.

WHEAT, including Corn.

1. He schal have multiplying of his grayn,
When he hath sown, be it whete or oles.
Prologue of the Pardoner, III. 70.
2. Nought but the mountaunce of a corn of whete.
Pardoner's Tale, III. 86.
3. He wolden sown som sithillette.
Or springen cokle in our clene corne.
Schepeweares Tale, III. 91.
4. And they brent alle the cornes of that lond,
Alle her olyvers and vynes eke.
Monkes Tale, III. 188.
5. Why schuld I sown draf out of my fete,
When I may sowe whete, if that me list?
Prologue of the Pardoner, IV. 6.
6. Out of the old fieldes, as men saith,
Cometh all this newe corne fro yere to yere.
Assembly of Foules, IV. 188.
7. In the field, that was on every side
Covered with corn and grasse.
Flower and the Leaf, IV. 239.
8. She made up frete hire corne and vynes alle.
Troilus and Cryseyde, VI. 38.
9. Pipes made of grene corne.
House of Fame, VI. 234.
10. Proud Bayard gynyth for to skippe
Out of the wey, so prickith him his corn.
Troilus and Cryseyde, V. 25.

WHIPPETREE.

Hasil, ew, wypylytre.
Knights Tale, I. 182.

The Whippeltree is the Cornel.

WILLOW.

Wilw, elm, plane.
Knights Tale, I. 182.
See also Sallow.

WOODBINE.

1. To make him a garland of the greves,
Were it of woodewynde or hawthorn leves.
Knights Tale, I. 136.
2. Some full pleasantly
Had chapelets of woodbind.
Flower and the Leaf, IV. 242.
3. Some of hawthorne, and some of the wood-
bines.
Ib. 246.
4. And of the that were chapelets on their hede
Of fresh woodbine.
Flower and the Leaf, IV. 255.

5. And, as aboute a tre with manye a twist
Bitrent and writen is the swete woodbynde.
Troilus and Cryseyde, V. 158.
6. Betwex an hulfer and a wodebynde.
Complaynte of a Lovers Lyfe, VIII. 10.

Woodbine was applied to many clinging shrubs, but in Chaucer's works it seems always to have meant the Honeysuckle. It was the established "emblem of faithful attachment, for it winds itself so firmly round some stronger tree that it becomes fixed in the bark."

YEW.

1. Fyne ew, popler, and lyndes faire.
Romaunt of the Rose, VII. 59.
2. The shooter ewe.
Assembly of Foules, IV. 195.

The Shooter Yew is so called from its use for bows.

The Yew completes the list of Chaucer's flowers. There are many passages in which he describes beautiful gardens. It is very tempting to quote them, but I will content myself with one only:—

May had painted with his soft colours
This gayden ful of leves and of floures:
And craft of mannes hond so curiously
Arrayed had this gayden trewely.
That never was ther gayden of suchis pris,
But if it were the verray paradis.
The odour of floures and the tresshe siht,
Wold han y-maked any herte light
That ever was born, but if it to gret sikennesse
Or to gret sorwe held it in distresse,
So ful it was of beaute and plesance.

Frankelynes Tale, II. 232.

I think I may say that Chaucer has given us a goodly collection of flowers, but I am rather surprised that he has not given us more. He was evidently fond of the country, and was an admirer of fine woods and forests. He was also a travelled man, and he travelled with his eyes open. As far as we know, neither Gower, Spenser, nor Shakespeare were ever out of Great Britain, but Chaucer had travelled in Flanders, France, Switzerland, and Italy, yet he gives no proof that the flora of any of those countries had given him any pleasure, or that he had at all noticed any difference between the flora of England and the flora of other countries. But he is quite original, and in his description of the flowers he is different from Spenser and Shakespeare. He did not, like Spenser, put flowers into his poetry because he had read of them in the Greek and Latin classics, and he almost nowhere gives us the minute, loving descriptions of the flowers that he saw and admired that we find in Shakespeare. The one exception is the Daisy; of that one flower he is the poet laureate. I think he was attracted far more by the flowers in a well-kept garden than he was by the flowers of the meadows, woods, and hedgerows of England.

But we may be thankful that he has picked for us so many flowers, and it has been to me a great pleasure to have gone through his works in search of them, and to have been obliged to go through them very carefully. In searching for flowers in an author's writings, every line must be read carefully; skipping is fatal, but in the case of Chaucer the labour of careful reading is very fully repaid. He is a delightful writer, full of wit and wisdom, and to read his works is an education in old English literature at its best. The vigour of his language is very fascinating, and we see the justice of Spenser's description of him as "the well of English undefiled." If the readers of the *Gardeners' Chronicle* are tempted by my papers on Chaucer's flowers to study his works carefully, I can say with all confidence that they will not be disappointed. H. V. ELLACON, B. Bilton Vicarage, Bristol.

THROUGH LITTLE NAMAQUALAND WITH THE VASCULUM AND THE CAMERA.*

(Continued from p. 125.)

If the title permits us to make a short excursion outside the limits of Namaqualand proper, we may descend on the eastern side of the Khamiesberg into the plains of Bushmanland. These plains are particularly attractive in January, when the grasses and other vegetation have recently been awakened by the summer rains. Some prominent features of this interesting but little-known country were described in *Gardeners' Chronicle*, December 4, 1909, p. 369. We are especially concerned just now with the hill, the Koeberg, which is seen in the distance in fig. 80. The Koeberg, the summit of which is not more than 500 feet above the plain in which it stands, together with a few less elevated hills in its immediate neighbourhood, is separated by 25 miles of undulating plain from the eastern foot-hills of the Khamiesberg. A magnificent view of the range to the west and south-west is obtained from the summit. In other directions the plains reach the horizon, except to the north, where the sky is pierced by the hill-tops of the Orange River basin.

The isolation of the Koeberg, on the one hand from the mountains of Namaqualand and on the other from similar abrupt elevations which are so characteristic of some other parts of Bushmanland, gives a peculiar interest to its vegetation. Its elevation is so slight, it seemed possible that its plants might be, in the main, those of the plains on which it stands. On the other hand, the species which are most characteristic of Bushmanland are sand-dwellers, and, according to report, the slopes of the Koeberg were rocky. If this proved to be correct, one might expect to find the bushes and trees of *Ficus*, *Acanthaceæ*, *Portulacæ*, *Asclepiadaceæ*, *Compositæ*, and *Leguminosæ*, which flourish on such hills 50 miles away to the north and east. Neither of these anticipations was realized. The flora proved to be a rich one, and almost entirely composed of succulents, most, possibly all, of which are to be found on the lower slopes of the mountains of Namaqualand—Cras-

lents, particularly by representatives of the first four genera named. A couple of grasses have strayed up from the plains below, and the quartz and granite rocks which compose the surface are decorated by numerous lichens. Such characteristic Namaqualand species as *Aloe dichotoma* and *Vogelia africana* seemed to be absent.

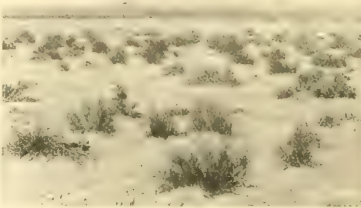


FIG. 80.—BUSHMANLAND.

A view of Koeberg from the neighbourhood of Gounoep, looking south-east.

Most of these plants were not in flower in January. The principal flowering season is said to be in September, as in Namaqualand, and the general appearance of the vegetation was such as to lend support to this statement. We have then in the Koeberg a rather remarkable example of a low hill bearing spring-flowering species rising from a plain where the vegetation is dormant or dead until the summer is far advanced. The district is quite uninhabited, and it is not easy to penetrate so far into this corner of Bushmanland except when the fitful summer rains have supplied the few shallow basins with water, which

plants to retain the flowering habit, presumably inherited from Namaqualand ancestors, remains a problem of much interest. However this may be, Koeberg at present is, botanically, an outlier of Namaqualand.

On re-entering the mountainous region of Namaqualand, we have an opportunity of seeing the junction of the flora of the plains with that of the hills. This is indicated by the gradual decrease in importance of the grasses with a corresponding increase in the relative abundance of the *Mesembryanthemums*. A remarkable plant which has been found in the three localities in which this boundary zone has been crossed is shown in fig. 79. This is a species of *Euphorbia*, which varies in height from a few inches to 2 feet or perhaps more. It consists of a stout conical axis quite concealed by the short, densely-packed branches which bear the few narrow leaves and the flowers. A living plant has reached Kew Gardens.†

It may be safely asserted that the phanerogamic flora is not yet fully known for any part of Namaqualand. Perhaps no part has been less studied than that which lies to the north of a line drawn from Port Nolloth to O'okiep. Through it runs the old missionary and trade route to Great Namaqualand, crossing the Orange River at a point variously known as Sendling's, Bethany, or Missionary Drift. The mountainous country extending for several miles south of the river is generally called the "Richtersveld," a name which perpetuates the association with the early missionaries. Starting from Annenuis, a station on the Port Nolloth-O'okiep Railway, the road to the drift, frequently degenerating to a mere track, passes over plains of heavy sand, along stony river-beds, up and down steep and rough mountain slopes. Throughout its whole length it lies in the extensive native reserve, whose Hottentot population is mostly attached to the Rhenish Mission, which has its headquarters at Steinkop. Its waters are few and far between, and most of them are more or less saline. On the whole, it is a region in which travel by the beaten track is neither comfortable nor easy, while the results of taking a wrong turning are not unlikely to be deplorable. But the vegetation is of exceptional interest, and grievances, real or imaginary, become insignificant.

Annenuis is on the edge of a sandy plain about 2,000 feet above the sea. On this plain two very remarkable plants are found in great abundance. One of these, *Sisyndite spartea*, a member of the *Zygophyllum* family, at once attracts attention on account of its large lemon-coloured flowers and its stiff broom-like habit. It was first obtained by Diège, not far from the mouth of the Orange River. Harvey figured and described it,‡ and suggested the very suitable name "Desert Broom." As to the extent of its area of distribution, there was no further information until it was found in Bushmanland and elsewhere by the Percy Sladen Expedition in 1909. It was then ascertained that it occurs in sandy localities at elevations hardly exceeding 3,000 feet between Aggenys in Bushmanland and Buchholzbrunn in Great Namaqualand, a distance of nearly 200 miles. Throughout this region rain is experienced during the summer season. At the mouth of the Orange River, as also at Annenuis, the principal rainfall occurs in the winter. But, as has been mentioned earlier, there is a summer rainy season in which the rainfall is undoubtedly inconstant but still sufficient to support a much larger proportion of summer-flowering species than can exist in the more southerly districts of Namaqualand.

Among them are numbers of forms which occur also in Bushmanland; of these *Sisyndite spartea* is a conspicuous example. Species which are common to the Bushmanland plains and to Namaqualand are almost confined in the latter



FIG. 79.—RATELKRAAL, ON THE TRANSITION-ZONE BETWEEN BUSHMANLAND AND NAMAQUALAND.

The hills in the background bear typical Namaqualand vegetation. The perennial plants of the plain are chiefly *Mesembryanthemums*. In the middle distance are seen three specimens of a curious *Euphorbia* which appears to be a characteristic species in the transition-zone.

sulas, *Cotyledons*, *Euphorbias*, *Mesembryanthemums*, *Asclepias*, *Sarcocaulon*, *Stapelia*, *Trichocaulon*, *Kleinia* and a single *Aloe*. A few dwarf bushes (*Montinia*, *Amarantaceæ*, *Pteronia*, *Thesium*, &c.) are by far outnumbered by the succu-

lents. There is, therefore, no precise information as to the weather conditions prevailing here during the winter. But it is quite improbable that the hill receives any considerable rainfall except in summer. The presence of lichens, however, suggests the deposit of moisture from fogs during the winter. But the nature of the climatic conditions which enable the Koeberg

* Being some notes on the Percy Sladen Memorial Expedition to the Orange River, 1910-11. This expedition was assisted by a grant from the Royal Society.

† *New Bulletin*, 1911, p. 168. (A pyramidal succulent species of *Euphorbia*, in general appearance not unlike a small, densely-packed plant of Brussels Sprouts.)

‡ *Thesaurus Capensis*, ii, 120.

region to sandy localities. The dry, sandy banks of the Orange River and the (usually) dry beds of its tributary streams seem to furnish a suitable passage by which plants may spread from the one to the other. This in itself affords some explanation of the fact that the species and genera common to the two areas are much more abundant within 50 or 70 miles of the river than they are farther south; the existence of a moderate rainy season in the summer may therefore be of less importance than has been suggested above.

If only on account of its beautiful flowers, which are produced in great profusion, the "Desert Broom" is certainly worthy of cultivation. Seeds were sent to England in 1909.

Not less interesting than *Sisyndite* is a curious *Mesembryanthemum*—*M. Barklyi* (see fig. 81)—to which reference has already been made. Unlike *Sisyndite* this is a characteristic Namaqualand species, ranging northwards from the southern end of the Khamiesberg to the Orange River, and no doubt for some distance beyond it. Some young seedlings found on the sandy plains between O'okiep and Koeberg may perhaps have belonged to this species, but its occurrence in Bushmanland is doubtful. From Annenous northwards it is very abundant, frequently growing gregariously, and in this manner

to 15 feet. It was not in flower in January, and if it has been collected by earlier travellers the specimens seem to have attracted no attention. Unfortunately, a seedling plant sent to Kew did not survive the voyage. *H. H. W. P.*

(To be continued.)

SCOTLAND.

THE ROSE SEASON.

Roses have had great difficulties to contend against by reason of the prevalence of dry weather, especially in such gardens as those of Logan House in this parish, for which water during that protracted period could hardly be obtained. Fortunately for my own garden, gravitation water was introduced into this "Paradise Terrestrial" many years ago, simultaneously with its first introduction into the manse. This inestimable advantage, to a great extent, saved the situation; but, after all, one very soon discovers from ordinary observation of the development of Roses, that nothing can quite make amends for the absence of rain. By far the most successful of my Roses this season are the beautiful *Wichuraianas*, such fine varieties as *Dorothy Perkins*, *Hiawatha*, *White Dorothy*, *Lady Gay*, and *Christian Curle* (of

been magnificent in dimensions and radiant in colour; *La France*, which merits an almost equally high eulogium; *Frau Karl Druschki*, the Queen of H.P.s, and *Margaret Dickson*, which flowers in my garden at an abnormal elevation, sometimes approximating to 20 feet; *Prince Arthur*, which has grown better than *Duke of Edinburgh*; *Clio*, which is always grandly effective; the distinctively coloured and grandly fragrant *J. B. Clark*; *Hugh Dickson*, which is a more refined and equally odorous Rose; *Mrs. Sharman Crawford*, *Lady Helen Stewart* (hardly so prolific as it was last year), and the luminous *Captain Hayward*, one of the most decorative, and assuredly the most reliable of the crimson varieties. Up to the present period, the most splendidly effective of all my climbing Roses have been *Bouquet d'Or*, *Mme. Alfred Carrière*, and the marvellous *Waltham Bride*, which have flowered continuously.

Of Roses of recent introduction the most successful have been *Juliet* (a strong grower, with uniquely coloured flowers and richly-scented foliage); *Viscount Carlou*, a very beautiful Irish Rose that should hereafter be found in every Rose garden; *Duchess of Wellington*, which is sufficiently sparing of its exquisite flowers; *Lady Pirrie*, of highly distinctive and fascinating complexion; *Miss Alice de Rothschild*, a "garden" *Marchal Niel*; and *Mrs. Leonard Patrie*, an attractive yellow Hybrid Tea. *David R. Williamson*, *Manse of Kirkmaiden*, *Wigtownshire, N.B.*

ABERDEEN AND NORTH OF SCOTLAND COLLEGE OF AGRICULTURE.

The calendar of this college, just issued, gives details of the scheme of instruction for the session 1911-1912. The courses of instruction provided for farmers includes lectures on soils, methods of cultivation, plant life, manures, feeding stuffs, diseases of animals, live stock, &c. Lectures in the branches of agriculture and agricultural chemistry are arranged in a series of three years. The syllabus includes fifty lectures on forestry, specially useful for intending factors, land stewards, land owners, and all who have to do with the management of the land. Those who wish to prepare for the Forestry Diploma granted by the Highland and Agricultural Society of Scotland, a further course, extending over an additional fifty meetings, for lectures and practical work will be necessary. For foresters, a course of instruction, extending over four weeks, is held in Aberdeen from the middle of August to the middle of September. The course consists of lectures, excursions, and demonstrations, and is specially intended for foresters with practical experience. Courses in botany, zoology, and school gardening have been given to students in training at the training college centre under an arrangement with the Provincial Committee for the Training of Teachers.

RAILWAY STATION GARDENS.

The usual prizes having been offered by the directors of the Glasgow and South-Western Railway Company for the best-kept gardens on their system the following awards have been made by the judges. First class, £6 each: *Dalmellington*, Mr. W. Taylor; *Racks*, Mr. J. Craig; *Montgreenan*, Mr. E. Blackwood; *Lochanhead*, Mr. J. Mirrey; *Cunninghamhead*, Mr. J. Hamilton; *Glenside*, Mr. Frank Stoddart. Second class, £4 each: *Sanquhar*, Mr. W. Yeudall; *Maxwelltown*, Mr. J. S. Faulds; *Maybole*, Mr. T. L. Kerr; *Moniaive*, Mr. G. Macdonald; *Salcoats*, Mr. T. Frew; *Clovenburn*, Mr. T. Faulder; *Killywhan*, Mr. R. Kelly; *Paisley West*, Mr. G. Hay. Third class, £3 each: *Carronbridge*, Mr. W. B. Dunlop; *Kirkgunzeon*, Mr. H. Patrick; *Kilkerran*, Mr. J. Reid; *Maidens*, Mr. J. Taylor; *Dunure*, Mr. W. R. Beckett; *Alloway*, Mr. T. Gillies. Fourth class, £2 each: *Gretna Green*, Mr. T. Gibson; *Tarbolton*, Mr. J. Reid; *Mauchline*, Mr. J. O'Hagan; *Houston*, Mr. R. Harvey. Fifth class, £1 each: *Auchincruive*, Mr. W. O. Walker; *Southwick*, Mr. G. Wallace; *Holywood*, Mr. M. McCordle; *Finnmore*, Mr. J. Dunlop; *Newtonnairs*, Mr. J. M'Dougall; *Knoweside*, Mr. E. Stoddart. In accordance with the rule debarbing those who have won prizes in succession, several stations were not in the competition, and next year *Glenside*, *Lochanhead*, and *Racks* cannot compete.



FIG. 81.—*MODEPONTIN*.

Mesembryanthemum Barklyi. The stem of a three-headed specimen is to the plant in the left foreground. On the right, behind the heap of broken stems and leaves, the species is represented by a large number of plants growing gregariously.

covering acres of space almost to the exclusion of other vegetation. It is all but confined to sandy and fairly level ground. It was discovered by Sir Henry Barkly, whose name it bears. Its peculiar habitat can hardly be more accurately described than in the words of its discoverer:—"The main stem reaches a height of 2 feet, branching out into flower-stalks at the top, whilst near its base a whorl of branches spring out, running for a foot or two along the ground, and then sending up upright flower-stalks." The flowers vary in colour from deep pink to a pure white. The leaves are thick and heavy with water, which oozes out on the surface; it is not possible to touch the surface at any time of the day without wetting the hand. Notwithstanding its large size, this species is probably an annual.

Mr. Brown in his description of this extraordinary plant says: "This is the largest species of *Mesembryanthemum* that has yet been discovered." Namaqualand, however, contains a much larger one, whose area of distribution seems to be included within that of *M. Barklyi*. This is a bush with a thick, woody stem; it is commonly 4 or 6 feet high, and one specimen measured not far from the Orange River ran up

which the last-mentioned, raised by Messrs. Cocker, is invaluable for garden decoration in early autumn). In addition to their great beauty, they have this special qualification, that they come into bloom during what is usually spoken of as the intermediate season; the period of repose between the first and second flowering of the Hybrid Perpetuals, the Teas, and Hybrid Teas. One of the loveliest of the semi-*Wichuraianas* (a term signifying that they have been partly derived from the *Noisettes* or Teas), namely, *Gardenia*, seems to have great difficulty in growing or blooming adequately here. I saw it quite recently in all its glory at Sir Mark Stewart's Southwick Garden, in Kirkcudbrightshire, and the head gardener there was quite unable to understand why I should have such disappointment with this variety, whilst Paul Transon and other *Wichuraiana* derivatives succeed well. But in the profuse flowering of such glorious varieties as *Dorothy Perkins*, *Hiawatha*, and *Christian Curle*, I have much consolation. Of the older varieties among the Hybrid Perpetuals and Hybrid Teas, those that have chiefly distinguished themselves this season are *Caroline Testout* and *Viscountess Folkestone*, which have



THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchard Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

ODONTOGLOSSUM.—The remarkable degree of popularity to which the members of this genus have attained is sufficient proof of their great value as flowering plants; this popularity is not to be wondered at, for under good cultivation the plants yield an abundance of flowers, and they are not unattractive when out of flower. Amongst the species, *O. crispum* in its varied forms, *O. Pescatorei*, *O. Hallii*, *O. Harryana*, *O. triumphans*, *O. luteo-purpureum*, *O. cirrhosum*, with their hybrids and varieties, take a front rank amongst spring and early-flowering Orchids. *Odontoglossums* are true Alpine plants, and a constant and regular circulation of air must always be maintained in the structures in which they are grown. The long spell of tropical weather during this summer made it impossible at all times to maintain a suitable temperature for cool-growing Orchids, no matter how heavily the glass was shaded or how free the ventilation afforded. The thermometer in the cool Orchid house at Westonbirt has frequently registered 90° F. during the middle of the day. From now onwards we may expect cooler nights—though the days may be hot and bright—therefore, the conditions will be more favourable for *Odontoglossums* and other Orchids which need a cool treatment.

AFFORDING NEW ROOTING MATERIAL.—The early autumn is generally regarded as the best season to renew the compost of such *Odontoglossums* as may require this attention. A thorough overhauling is usually necessary, including cleansing, re-potting, or surfacing, and re-arranging them for the winter. Re-potting is the most important item, and success will depend largely on how it is carried out. Wherever it is possible, do the work when the new growths are commencing to form roots. All the plants may not require re-potting; in some cases a surface-dressing will suffice, but the sooner either operation is carried out after the tips of the young roots appear the better, as the latter are then less liable to be injured. The compost and method of potting advised in the case of *Odontodias* (see p. 108) may be adopted for *Odontoglossums*; overpotting must be rigorously avoided. No hard-and-fast rules can be laid down, but the more vigorous the plant and the larger the roots the rougher should the compost be and the larger the receptacle. Everything used should be thoroughly clean, and proper drainage materials must be provided. Specimens that have been left undisturbed for a few years, and are showing signs of exhaustion, should have all the old rooting materials shaken away, old and useless pseudo-bulbs removed, and new receptacles and fresh compost provided. Use pots just large enough to accommodate the plants for one season only. Healthy, root-bound plants needing more rooting space should be shifted, without disturbance of the ball, into larger pots.

AFTER-TREATMENT.—It is not advisable to keep the roots very moist for some time following root disturbance, but, as the new material will dry much more rapidly than the old, the plants will require frequent examination to ascertain if water is necessary. Plants that have been merely top-dressed are the more difficult to manage in watering, as sometimes the new material at the surface will be dry and that below quite wet. In doubtful cases the weight of the pot and its contents is the best guide. A comparatively dry state of the rooting materials is more conducive to early activity of roots than an unnecessary amount of moisture. Maintain a moist atmosphere in the immediate neighbourhood of the roots by damping bare surfaces in the neighbourhood of the plants, spraying the latter overhead two or three times daily in suitable weather. Give strict attention to ventilation and shading; the latter is an important detail after re-potting, but care must be exercised that the shading is not exces-

sive, for light is necessary to the young growths. Weakly and badly-rooted plants should be afforded the shadiest position, whilst any specimens that have not been re-potted may be allowed the lightest places. The house and stages should receive a thorough cleansing whilst re-potting is in progress, also the walls, glasswork, and woodwork. The moisture-holding material, such as shingle or coke, should be turned to destroy the green slime that is always present after a season's growth.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to The Earl of HADDINGTON, K.T., Tynningham, East Lothian.

PROPAGATION OF BEDDING PLANTS.—The propagation of tender plants employed for massing should be proceeded with, choosing as cuttings shoots that are neither unduly long nor soft. Some gardeners dibble the cuttings into pots, others into boxes; whichever method is adopted, allow plenty of space between the cuttings so that the plants may grow freely. Certain kinds need to be kept growing during the winter, and in their case it is imperative not to overcrowd them in the cutting boxes. Most plants root satisfactorily in cold frames kept close and regularly moistened. *Centaurea ragusina* should be kept somewhat dry and shaded, whilst *Mesembryanthemum cordifolium variegatum* should be always exposed to the sun, and not watered until the roots are active. The side growths of *Carnations* root freely in a sandy compost kept always soaking wet, and they do better in a slight bottom heat, such as is afforded by an old hotbed. If the shoots are allowed to flag they usually die.

HELIANTHUS.—The various sorts of Sun-flowers are now presenting a very gay appearance, and none is more beautiful than the variety *Miss Melish*. The plant grows so tall at Tynningham that most of the stems have to be shortened. But this only causes the buds lower down the stems to break, and is the means of lengthening the period of flowering. Where there is not much space for hardy herbaceous plants, the variety *Daniel Dewar* or some other early sorts should be intermixed with *Miss Melish* to prolong the season. I prefer those of the perennial section to the annual kinds, of which many are very beautiful. An allied genus, *Thionia*, furnishes glowing orange-coloured flowers in *T. speciosa*; the blooms resemble a single *Dahlia* rather than a *Sunflower*. *Helenium grandiflorum striatum* approaches nearest to it in colour, but is much less effective, producing dull flowers. Since writing of *Anemone japonica* in the calendar for July 29, p. 74, I have seen a fine new, white variety named *Géante Blanche*, with flowers $\frac{1}{2}$ inches across and possessing thick, broad petals. This has not been a satisfactory season for *Astilbes*, but the old *A. Davidii* still holds its own amongst the newcomers; *A. grandis* is rather disappointing, and of the other hybrids I should be inclined to give *rubella* a high position. Though the ordinary mixed border is not to be compared with a wet position in the water garden as a home for these plants, yet some *Astilbes* are so highly attractive that they should be given a trial in the borders, assisting them with applications of manure water.

THE SEASON.—The intense heat has suited certain plants, which have seldom appeared so fine as this season. *Nasturtiums*, which usually make more leafage than flower, are smothered in blossoms. *Hollyhocks* are particularly brilliant, whilst *Ivy* and *Zonal-leaved Pelargoniums* and *Verbenas* have never been more gay. The many kinds of French and African *Marigolds* have also enjoyed the hot weather. These plants are not nearly so extensively grown as their warts warrant, the disadvantage in their use is their tendency to produce both single and double flowers which do not associate well in beds or borders. For this reason I always grow *Marigolds* in the kitchen garden until they reach the flowering stage, when the singles are weeded out from the doubles. *Heliotrope* has done well this year, although last season it was inferior, and *Carnations* have been extra good. Other plants that have benefited by the extra heat include *Romneya Coulteri*, *Colletia horrida*, and *Nandina domestica*. *Roses* are still flowering profusely, while some of the *Clematises* are still

presenting masses of colour. From all parts one hears of deficient supplies of border flowers. At Tynningham we have had plenty of blossoms, but they have passed out of season quickly.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

VEGETABLE MARROW.—Plants of Vegetable Marrow should receive liberal applications of liquid manure whilst the dry weather continues. Thin out the worthless growths and cut the fruits before they grow large and become hard.

POTATOS.—There should be no delay in lifting and storing mid-season Potatoes. Owing to the dry season the crop is a small one, but the tubers up to the present time show no signs of disease, and it is advisable to harvest them before rainy weather sets in. If sheds are available, the tubers may be stored as soon as they are lifted, covering them with mats or some other suitable material to exclude the light. Late varieties should be placed in a dry position for a week or two, and then carefully examined for diseased tubers, previous to placing them in clamps for the winter. Straw or dry Fern should be placed carefully over the tubers previous to covering them with a 9-inch layer of soil, which will be sufficient protection until frosts appear.

GREEN VEGETABLES.—The ground between rows of Colewort and other winter greens should be stirred frequently with a hoe, and all blanks in the rows made good. If necessary, further plantations of Coleworts may be made in sheltered places where the plants will grow to a useful size before very cold weather sets in. These late plants often withstand the winter better than those put out early in the season.

SPINACH.—Plants of the earliest batch of Spinach will be sufficiently advanced to require thinning. Allow a distance of 3 inches between the plants in the rows, so that they may not become drawn, as only sturdy specimens can withstand the winter. Give frequent dustings of soot, and hoe the ground between the rows as often as time will permit. Sowings of Spinach may yet be made in sheltered places to provide a supply of leaves for use during the spring.

Cauliflower for Spring Planting.—Seeds may be sown now, and again about the middle of September, to furnish plants for early summer supplies. In cold districts the first sowing may give the best results, but at Frogmore we sow on a date as near the middle of the month as possible. Choose ground which is not too rich and tread the soil firmly before the drills are made. Sow the seeds thinly in order to produce stocky plants, which should be potted as soon as they are large enough to be shifted. The soil for the purpose of potting should be not too light in texture; turfy loam with a sprinkling of rough sand will suit well. When potted, the plants may be stood on a bed of ashes in a cold pit, raised to within 15 inches of the roof-glass; the lights need not be used until the plants require protection from frost or heavy rains. We grow the varieties *Magnum Bonum*, *Walcheren* and *Early London*, and they are ready for use in this order.

TURNIPS.—Proceed with the thinning of seedling Turnips as soon as they are large enough, allowing a distance of 9 inches between the plants in the row. Give frequent dressings of wood ashes and use the Dutch hoe between the rows as frequently as possible.

RADISHES.—A sowing of Radishes may be made in cold pits to supply roots for use during October. The soil should be rich and light and kept well moistened with soft water to encourage a quick growth.

BASIL.—If this herb is required in a green state throughout the winter no time should be lost in sowing seeds. When the seedlings are large enough, they should be pricked off in 6-inch pots and placed as near to the glass as possible in a house having a temperature of 65°. From five to six plants should be allowed to each pot.

MINT.—If the beds of Mint were cut over a month ago, as advised, there should now be a plentiful supply of green leaves. The remainder of the crop should be cut down now and the roots lifted for forcing in October.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LIGGOLD & LEITCH, LTD.,
Esq., Gunnersbury House, Acton, Middlesex.

LILIUM LONGIFLORUM.—A batch of bulbs of this *Lilium* intended for flowering in mid-winter should be started soon. Some of the plants will probably flower in about four months, and others a few weeks later. It is not always expedient to select the largest bulbs; a firm, medium-sized bulb often gives the best results. The bulbs to be started now have been retarded, hence they should not be exposed long before they are rooted, and as small pots as possible should be employed with a good, light soil. Plants now showing their buds will prove very useful during September and October. See that they are not in the slightest degree infested with aphids, as these will cause the flowers to be deformed. Other *Liliums*, such as the forms of *L. speciosum*, that are now flowering under natural conditions, should be kept in a cool, airy house, and any that may be somewhat later should be kept back in the open for a time. As these pass out of flower do not immediately dry the bulbs off but endeavour to retain the leaves to nourish the plant.

GREENHOUSE PLANTS.—In their native habitats, both Cape and New Holland plants receive a greater proportion of beneficial influence from the sun than they receive in this country. After potting, either keep the pots well moistened on their exterior surfaces, or shade them from the sun's rays to prevent the soil becoming dry to an unequal degree. During very hot weather it is an excellent plan to lightly syringe all greenhouse plants that are standing outside, and more especially such as have been repotted recently; this should be done as soon as the sun has left the plants. Any necessary tying and training of the shoots should be attended to before the plants are housed. There is more room to do the work in the open. Pay a close attention to the watering of all permanent plants, and see that the mass of roots is thoroughly soaked. The practice of affording just a little water, when the plants are not actually dry, and that merely to save further attention, is inadvisable; it is a lazy man's system. Keep a close watch for all insect pests. In such a season as the present one both thrips and red spider multiply very rapidly. Indian *Azaleas* (*Rhododendron indicum*) are liable to be attacked by both these pests, but frequent syringings on the under-surfaces of the leaves will keep them in check if done in time.

LILY OF THE VALLEY.—Retarded crowns of *Lily* of the Valley may be had in flower in about three weeks from the time of potting, but it is better to allow a few days more, and insure them to the full height when about half developed. After potting cover them with a light dressing of cocoa-fibre refuse, or failing that, with light sandy soil. *Lily* of the Valley will be found useful for decorative purposes from the end of September onwards.

FRUITS UNDER GLASS.

By E. DEBERRY, Gardener to the Hon. VISCOUNT GIBBS,
Aldenhall House, Hertfordshire.

PLANTING PEACH TREES.—If it is intended to plant Peach trees for forcing early in the New Year the work should not be deferred later than is absolutely necessary; the planting may be done with safety as soon as the growths show signs of ripening. The trees may be expected to crop according to their size. It often happens when a tree is shifted after the branches become bare of leaves, any fruits that may set the following season grow for a short time and then turn black in the centre and drop. This is, no doubt, due to a too recent disturbance at the root, whereas, if autumn planting is adopted, the tree has two or three months for the soil to settle about the roots before the winter arrives. Where space permits, it is a good plan to grow a few young trees of suitable varieties a season or two before they are required for planting indoors. This allows time to train the branches and for fibrous roots to develop. Peach trees, when newly planted in rich soil often develop excessive growths, unless they produce crops of fruits. The nature of the soil in which the trees are planted should depend, to a great extent, upon the natural soil of the border, which may be judged by the condition of the other trees there-

in. Perfect drainage is essential and, if this is deficient, it must be provided. Nothing is better for planting the trees in than good loam, with either crushed bones or bone-meal, a sprinkling of wood ash, and, according to the nature of the loam, sufficient lime rubble, or mortar rubbish, to ensure the soil being porous. Remove any damaged roots and those that do not possess fibres, and always cut them from the underside with a sharp knife. Plant the trees firmly, and allow for the soil shrinking. Give a thorough watering, and apply a mulch on the surface, near to, but not quite touching, the stem. Do not tie the branches, save a few in loose ties to keep the tree in position. Admit an abundance of fresh air, and, in the event of hot weather, shade the glass.

CUCUMBERS.—Plants of *Cucumber* in bearing will require top-dressing with a little rich material to stimulate growth, as the rootlets appear on the surface. Endeavour to keep the foliage clean by syringing the plants with clear water as frequently as the weather permits. Growing plants of later batches will require manurial assistance, such as diluted liquid manure. The best results will be obtained at this season by the use of fire heat in dull weather and at night time. Seeds should shortly be sown in considerable heat to raise a later batch of plants. Place the seedlings near the glass, and when they develop the first rough leaves and are ready for potting, shift them into pots 5 or 6 inches in diameter. Afford water carefully for a time, but damp the under-surfaces of the leaves, also the surroundings frequently. *Lockie's Perfection* is one of the best varieties for late cropping, and *Syon House*, when obtained true, is also to be recommended. The latter is an excellent variety for planting at the end of the year, and though the fruits are short, they develop a good shape, and the plant is a free cropper.

THE HARDY FRUIT GARDEN.

By W. HERLEY WARREN, Asst. Chmn. Gardens,
Buckingham Palace.

FRUIT-TREE BORDERS.—The soil of borders in which fruit-trees are planted should, in all situations, possess a certain degree of adhesiveness, but not such as to prevent openness of texture. Adhesiveness is necessary for the soil to retain moisture, whilst the advantages of an open texture are obvious. In a soil possessing these qualities the root fibres will increase abundantly, and the more they increase in number the better will the tree flourish. Such a soil, under hot, dry conditions, will readily absorb and retain a sufficiency of moisture, and is less liable to cake and crack on the top, whilst under colder, wetter conditions it would be so porous as not to be too retentive of moisture, at the same time admitting a certain degree of warmth from the atmosphere, which is of great importance in promoting the healthiness of the tree. A cold, wet situation, where stagnant moisture is retained about the roots, is certain, sooner or later, to favour disease. It is always better to have a soil too light, rather than too wet, for when too adhesive and the roots have extended in the border, a remedy cannot well be applied without doing considerable damage to them. But the defects of a light soil may be partly remedied in affording the tree a greater quantity of food by surface-dressings, or manure water. Where the natural soil is found to possess too much clay, coarse sand, road grit, or burnt vegetable refuse may be mixed with it, and the whole well turned over previous to planting the trees. If the soil is too light, it may be improved and consolidated by the addition of one of the lighter sorts of clay, and a well-decayed cow manure. Where the soil is a very strong loam, proper drainage must be provided unless the substratum is naturally porous. The use of stones or loose gravel for forming the under-stratum is far preferable, in the majority of instances, to stone slabs or concrete; the latter prevents the water steadily settling down below the soil of which the border is composed, consequently the soil nearest the concrete is frequently in a sour condition, whilst the stones or gravel allow an undue amount of moisture to filter away, whilst at the same time few, if any, of the roots of the tree will penetrate into or beyond the drainage. The soil for the border should be prepared two or three months in advance of planting. This

method of preparing fruit borders may, perhaps, be considered by some troublesome and expensive, yet it is of the utmost importance to the well-being of the trees, and the expense incurred is not nearly so great as it would be afterwards in correcting faults. The soil should always be in a suitable condition of moisture when the trees are planted, neither too wet nor too dry; a good test is to squeeze some in the hand; if it falls apart when the hand is loosened, it is too dry, and if it can be moulded stiffly, it is too moist. Besides the disadvantage experienced in working the soil when wet, it does not allow ramming to be done, as that would cause caking; the disadvantages of a dry soil are obvious. Do not mix fresh manure about the roots of the trees; this is best applied as a mulch. It is unwise to fasten the branches in position until the tree has settled in its place. The Apple requires a strong loam, the Pear a rather light soil, and the Plum, Cherry, Peach, Nectarine, and Apricot an even lighter soil. Damsons and Prunes will thrive in heavy, cold soils, in which it is almost impossible to grow other kinds of fruit successfully.

THE FRENCH GARDEN.

By PAUL AQUATAS.

MELONS.—Where Cauliflowers have not been planted as an intercrop amongst Melons the beds may now be cleared. The soil of old Melon beds is very rich, and is generally used for open air crops the following season. For this purpose, the manure of the first trench is carried away, and the soil between the two first beds dug, when levelling the first bed. The fine soil from the second bed is spread evenly on the first, and the manure from it is placed in a ridge on the first bed, and so on till all the manure is taken out from all the trenches. When this is done the manure is spread evenly over the ground, which is then dug in the usual manner.

CUCUMBERS.—*Cucumber* plants should be watered very carefully, and the lights closed at night to favour the production of fruits as long in the season as possible. Very little water is needed as the roots will now find plenty of moisture in the manure.

OPEN AIR CROPS.—An abundant supply of water must be given to Cauliflowers, Celery and Carrots as these plants are growing fast. The earliest batches of Celery grown in the old manure beds may be bleached by spreading mats over them. If the plants have been grown very closely, covering the outside rows will suffice. The drought has delayed the planting of *Batavian Green Endive*. The germination of *Spinach* has been very slow from the same cause. In many cases *Lamb's Lettuce* has not yet been sown. It will, therefore, be necessary to take advantage of the first showers to attend to this operation. The Onion plants are now appearing through the soil, and waterings must be done, but not in excess, as too much moisture is very harmful at this stage.

WINTER CROPS.—Seeds of Lettuces should be sown very thinly, in frames or under cloches, to furnish plants for cutting in November. The glass needs to be shaded very carefully during the time the seeds are germinating; a little ventilation should be afforded as soon as the cotyledons appear. *Little Black Gott* is the best variety for this sowing. Where cloches are at liberty in October a few *Cos Lettuces*, *Grey of Paris*, may be sown in the same way. We intend to cultivate our plants in frames this season as the cloches will be needed for other crops before the bulk of the Lettuces are ready for marketing late in November.

MUSHROOMS.—To obtain good results with this crop, long strawy horse-manure should be used for the beds, placing it in heaps 5 feet high, and 6 feet to 7 feet wide. Short manure is spread evenly on the heap as the work proceeds. The mass is watered thoroughly to promote fermentation, and it is trodden firmly afterwards. After six or seven days the heap is turned again, the dry manure from the outside being placed in the centre and, if necessary, more water is applied. The height is maintained by making the heap narrower. The spawn should be placed in a damp spot where the temperature does not exceed 55°, for a few days previous to the spawning of the beds.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London, W.C. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR SEPTEMBER.

SATURDAY, SEPTEMBER 2.—
Border Hort. Soc. Sh. at Coldstream. Soc. Française d'Hort. de Londres, 10 a.m.
TUESDAY, SEPTEMBER 5.—Scottish Hort. Assoc. meet. Wednesday, September 6.—
Glasgow and West of Scotland Fl. Sh. (3 days).
THURSDAY, SEPTEMBER 7.—
Nat. Dahlia Soc. Exh. at Crystal Palace (2 days).
MONDAY, SEPTEMBER 11.—
United Hort. Benefit & Prov. Soc. Com. meet.
TUESDAY, SEPTEMBER 12.—
Roy. Hort. Soc. Com. meet. (Lecture at 3 p.m. by Mr. Thomas Smith, on "The Small Holdings Movement.")
WEDNESDAY, SEPTEMBER 13.—
Roy. Caledonian Hort. Soc. Sh. in Waverley Market, Edinburgh (3 days) Dickson & Robinson's Vegetable Competitions at Manchester.
THURSDAY, SEPTEMBER 14.—
Nat. Rose Soc. Autumnal Sh. at R.H.S. Hall, Westminster. Soc. Nationale d'Hort. de France (Paris) Exh.
SATURDAY, SEPTEMBER 16.—
Faisley Florist Soc. Chrys. Sh. Elstree and Boreham Wood Fl. Sh.
MONDAY, SEPTEMBER 18.—
International Conference on Genetics at Paris (6 days). Nat. Chrys. Soc. Executive Com. meet.
WEDNESDAY, SEPTEMBER 20.—
Nat. Dahlia Soc. Exh. at Royal Botanic Gardens, Regent's Park (2 days).
TUESDAY, SEPTEMBER 26.—
Roy. Hort. Soc. Com. meet. Vegetable Competition (Lecture at 3 p.m. by Mr. H. Senn, on "Salads.")
WEDNESDAY, SEPTEMBER 27.—
Watford Fl. Sh. Irish Gard. Assoc. and Benev. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich:—59° F.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, August 30 (6 P.M.): Max. 78°; Min. 56°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, August 31 (10 A.M.): Bar. 30.3°; Temp. 66°; Weather: Sunshine.

PROVINCES.—Wednesday, August 30: Max. 62° Yorkshire; Min. 58° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY.—
Dutch Bulbs in all varieties, at 67 and 68, Cheapside, E.C., by Messrs. Protheroe and Morris, at 10.30.
MONDAY, WEDNESDAY, AND THURSDAY.—
Dutch Bulbs in Large and Small Lots, at Stevens' Auction Rooms, 38, King Street, Covent Garden, W.C., at 12.30. (Established 1760.)
FRIDAY.—
Imported Oncidiums, Sophronitis, Cattleyas, &c., also established Orchids, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 12.45.

Although this embracing designation appears in the title of the work, the author **"The Brambles of the World,"** emphasises the fact that he is not in the position to offer a complete monograph of the genus *Rubus*. He preferred giving the amount of information he already possessed to waiting for finality, and botanists will be grateful to him for this decision. Dr. Focke's view is that a knowledge of the distinct species-types of the whole genus is of the first importance, leaving the further subdivision to be worked out with the great-

est reserve and caution. This statement explains in the fewest words possible the character and, it may be added, the quality of his work. It would be presumptuous to give an opinion of the value of his classification without submitting it to a practical test. At the same time we are impressed with the idea that Dr. Focke's book will at once be accepted as authoritative. The descriptions and definitions are brief, clear and devoid of useless and tiring repetitions. References are limited to records concerning which there is no doubt that the same species, with the same limitations, was under observation. The descriptive part is in Latin and the rest in German. The author's primary divisions, using his own terminology, are sub-genera, of which there are 12, namely: *Chamæmorus*, *Dalibarda*, *Chamæbatus*, *Comaropsis*, *Cylactis*, *Orobatus*, *Dalibardastrum*, *Malachobatus*, *Anoplobatus*, *Idæobatus*, *Lampobatus*, and *Eubatus*. With slight modifications this is the same classification proposed by the author in 1874 and improved in 1888. As thus constituted, *Rubus* contains no elements not generally accepted, and it is a well-defined genus, though exhibiting great variety in habit, foliage, inflorescence and fruit.

R. Gunnianus, a native of the hills of Tasmania, belonging to the sub-genus *Dalibarda*, is described as the smallest of all *Rubi*; that is in stature. It creeps on the ground, forming large patches, and bears edible fruits, in flavour resembling those of *Vaccinium Oxycoccus*. *Rubus arbor*, from Central China, is the only species described as a tree, but its dimensions are not given. The fruit of *Rubi* is composed of five, or sometimes fewer, carpels; but they are usually numerous, and sometimes as many as a thousand may be found in a fruit. The sub-genera are of very unequal size, the first seven numbering collectively only 45 species. *Chamæmorus* is restricted to one species, which is circumpolar in the north, including Britain. *Comaropsis* comprises only two species restricted to extra-tropical S. America. *Orobatus* is a group of about a dozen species confined to the Andes. *Anoplobatus* consists of half-a-dozen species, including the familiar *R. odoratus*, *R. nutkanus* and *R. deliciosus*. They are unarmed and mostly bear edible fruits, though of *R. deliciosus* it is said "fructus atropurpurei, uris potius quam hominibus grati"—agreeable to bears rather than men! *Malachobatus* and *Idæobatus* number upwards of 100 species each; the former inhabiting tropical and sub-tropical regions in Asia; the latter widely dispersed. Dr. Focke gives no statistics of distribution, but the greatest concentration of species seems to be in Eastern Asia, and especially in Central and Western China. In 1887 there were catalogued 40 species of *Rubus*, native of China, and this number had been increased to 100 in 1905. These species are not critical species, as exemplified by our native Brambles, but mostly very distinct from each other, exhibiting a range of diversity not developed in any other part of the world, and representing, if we in-

clude Japan, 10 out of 12 of Focke's sub-genera; the missing ones being the South American *Comaropsis* and *Orobatus*.

The third part of Focke's Monograph is to be devoted to the elucidation of the sub-genus *Eubatus* or Tree Brambles, including our native Blackberries, of which botanists have made so many species. Dr. Focke commenced his studies on this group more than half a century ago, and he has published a number of forerunners to his looked-for final revision that lead us to expect a more philosophical treatment of *Eubatus* than has yet appeared. It will be news to many that this sub-genus is most richly developed in South America, and that it is wanting in almost all other countries except North Africa. A single branch, says Focke, of *Eubatus*, the *Mori-fera*, reached Europe, where it has split up into numberless small species.

SUPPLEMENTARY ILLUSTRATION.—We reproduce a sketch, by Mr. WORTHINGTON SMITH, of the fine inflorescence of *Crinum Johnstonii*, shown by Sir Trevor Lawrence at the meeting of the Royal Horticultural Society on June 6 last, when the plant was recommended an Award of Merit by the Floral Committee. The spike bore about 20 expanded flowers and a number of buds, and the peduncle was stout, solid and about 2 feet long. The species is a native of British Central Africa, where it was first found on Mount Zomba by the late Mr. McCLOUNE, of the forest department in that colony, who forwarded a number of bulbs to Kew in 1899. Plants flowered freely in a warm greenhouse, and a figure was published in the *Botanical Magazine*, t. 7812 (1902), with a description by Mr. BAKER, who named it in compliment to Sir HENRY H. JOHNSTON, who was Commissioner and Consul-General for British Central Africa. *C. Johnstonii* is closely allied to *C. longifolium* (caspense), one of the most widely distributed of African *Crinums*. As a garden plant it might easily be mistaken for the white form of *C. Powellii*, which is a hybrid between *C. longifolium* and *C. Mooreanum*, and is unquestionably the best of all garden *Crinums*, as it is hardy in the warmer parts of the British Islands, growing and flowering very freely in summer in a sunny border. The flower-head of *C. Johnstonii* shown by Sir Trevor Lawrence had been cut from a plant established in a warm border at Burford Lodge. It is, therefore, likely that this species is harder than it was at first supposed to be, especially as Mount Zomba is more than 5,000 feet high. The flowers are fragrant, about 8 inches long, with a narrow green tube and a bell-shaped limb, the segments being ovate, 1½ inch wide, white tinged with red on the keel and the apiculate tip; the filaments are white, the anthers brown, and the style red.

THE CABBAGE BUTTERFLY.—A lady resident at Godalming, Surrey, recently offered prizes for the largest number of white Cabbage Butterflies (*Pieris brassicae*) captured in the district. The butterflies were exhibited at the show of the Farncombe Allotment Society held on Saturday, August 26, and numbered no fewer than 5,400; a boy won the 1st prize with a catch of 2,974, a girl followed with 1,726, and a second boy came 3rd with 700. The largest collection included not a single specimen other than the species named. As the prizes were offered but a few weeks previous to the exhibition, the chief prize winner must have exerted extraordinary energies.

Species *Rubus* Monographia generis *Rubus* Protheroe. Autore Wilhelm Focke. Pars i. 391a. Pars ii. 1911. (Bibliotheca Botanica, Heft 72.) Quarto, pp. 223, tt. 87. (Stuttgart: Schweizerbart.)



CRINUM JOHNSTONII (BRITISH CENTRAL AFRICA).

THE SPECIMEN ILLUSTRATED WAS CULTIVATED IN A BORDER IN SIR TREVOR LAWRENCE'S GARDEN AT BURTON, SURREY.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION: EXHIBITS OF SUNDRIES.—Plans have been prepared, and arrangements are now organised for exhibitors of horticultural sundries to negotiate for spaces at the Royal International Horticultural Exhibition to be held in the Chelsea Hospital Gardens from May 22 to 30, 1912. By the term horticultural sundries is to be understood all subjects relating to a garden other than plants, flowers, trees, shrubs, seeds, and such like. Garden houses, garden furniture and ornaments, glasshouses, heating apparatus, implements, appliances, tools, manures, insecticides, and garden recreations and games will be considered as sundries. There will be spaces in the open air and under canvas. Plans, particulars, and application forms can be had from Mr. ARTHUR J. GASKELL, Royal Horticultural Hall, Vincent Square, Westminster, London, S.W., to whom all communications respecting sundries should be addressed for the present. As the amount of space available for sundries is limited, those desiring the better positions are advised to write for particulars before September 30, on which date the information will be despatched to all simultaneously. A special jury will inspect the exhibits of sundries, and recommend awards.

INTERNATIONAL CONFERENCE ON GENETICS AT PARIS.—The arrangements for the fourth international conference on genetics are now complete, and we enumerate some of the more important fixtures. The proceedings will open on Monday, 18th inst., at 9.30 a.m., with a formal reception of the members at the office of the Société Nationale d'Horticulture de France (84, Rue de Grenelle). M. VIGER, the President of the Society and also of the committee responsible for the arrangements of the genetic conference, will deliver an address of welcome. In the evening the members will be entertained at a cinematograph display of botanical subjects prepared by Mons. GAUMONT. On Tuesday, at half-past nine, business will begin in earnest with the first sitting of the conference. The meeting will adjourn for lunch, but will resume at 2.30. On Wednesday the conference proceedings will commence at 9.30, and the afternoon will be devoted to visiting the Pasteur Institute, which has done, and still does, so much in the interests of the science of bacteriology. This visit will be followed by an excursion on the next day to the Pasteur Institute at Garches, and an inspection of the Vilmorin experimental nurseries at Verrières-le-Buisson. On Friday and Saturday the conference will meet at 9.30 a.m. and 2.30 p.m. respectively. On Saturday morning a visit will be made to the Natural History Museum. A fitting termination to the activities of the week will take the form of a subscription dinner, to be held on the Saturday evening at eight o'clock.

SMALL HOLDERS' EXHIBITION.—A show of vegetables, hardy fruits, and other produce, open only to small holders, allotment holders, and cottage gardeners, was held on the 29th, 30th and 31st ult., in the Small Holdings and Country Life section of the Festival of Empire at the Crystal Palace, Sydenham. The schedule embraced 79 classes, with separate divisions for small holders, allotment holders, cottage gardeners, and small-holder clubs. On the whole the competition was poor, 20 of the classes containing no entries and many others only one or two. In organising the show, the greatest difficulty was experienced in reaching and informing a hard-working and widely-scattered class, rather indifferent to competitive exhibitions and curiously averse to co-operation. The quality of the produce exhibited was in many individual exhibits excellent, but the average was weak, and Peas, Cauliflowers,

Turnips, and Salads were unrepresented. The best contested class was that for the largest Potato, in which 23 tubers were staged, the winning exhibit, a tuber weighing 2 lbs. 1 oz., being sent by Mr. G. DUKE, Tapton, Sussex. The Silver Championship Cup offered to the competitor securing the greatest number of points at the show was won by Mr. T. KING, Chippenham, who won 11 1st and five 2nd prizes. The gold medal offered to the competitor securing the second highest number of points was won by Mr. G. SCOTTFIELD, Neath, Glamorganshire.

NATIONAL DAHLIA SOCIETY.—The early exhibition of the National Dahlia Society will be held on the 7th and 8th inst. at the Crystal Palace, Sydenham. The exhibits will be arranged in the centre transept. The Dean Memorial Medal will be awarded for the best exhibits of Cactus Dahlias in Classes 17 and 26 of the schedule, which may be obtained from the secretary, Mr. E. F. HAWES, Royal Botanic Gardens, Regent's Park.

"THE HORTICULTURAL DIRECTORY."—The editor of this gardening annual solicits the aid of our columns in obtaining information respecting the changes of gardeners' or nurserymen's addresses that may have occurred since last December. Notice of such changes may be sent to him at 12, Mitre Court Chambers, Fleet Street, London, E.C.

"THE BOTANICAL MAGAZINE."—The issue for August contains illustrations and descriptions of the following plants:—

CLUSIA GRANDIFLORA, tab. 8387.—The species of Clusia are epiphytic shrubs inhabiting tropical America and the West Indies. *C. grandiflora* is a native of Guiana, and the specimen figured in the *Botanical Magazine* flowered in the Cambridge Botanic Garden, the plant having been received 23 years ago from the gardens of the Royal Botanic Society at Regent's Park. The specimen is a pot-plant about 9 feet high, and has six branches fully furnished with ovate or elliptic-ovate leaves, some of them measuring 18 inches long and $7\frac{1}{2}$ inches across. It is stated that its cultivation among other tropical plants at Cambridge has not given rise to any great difficulty. The plant requires much moisture, both in the atmosphere and at the root. Its propagation may be effected by cuttings, but a period of at least six months is required to establish a specimen. The plant is dioecious, the large, white flowers with faintly rose-coloured margins being produced in terminal cymes.

TORENIA ATROPURPUREA, tab. 8388.—This species of *Torenia* is described as being remarkable for the dark purple colour of the corolla, and the unusual length of the corolla tube. It is a native of the Island of Sumatra and of the central portion of the Malay Peninsula. In Perak and Selangor, Mr. RIDLEY met it growing in considerable clumps on clay banks. The figure has been prepared from a plant which was presented to Kew in 1909 by the late Colonel BEDDOME, who cultivated an interesting collection of uncommon stove and greenhouse plants at Sispapa, West Hill, Putney. Colonel BEDDOME obtained the plant originally from Sir FRANK CRISP, to whose collection at Friar Park, Henley, it had come as *T. rubens* from an Erfurt nursery. The plant was formally included in *T. asiatica*, by reason of the calyx being faintly keeled only, and not winged, and there is some excuse also for its inclusion with *T. rubens*; but the colour of the corolla is very different from *T. rubens*, and there appears ample justification for Mr. RIDLEY making the plant a new species. *T. atropurpurea* appears to be a very decorative plant, needing a warm, moist house, where it may be grown either in a basket or as undergrowth where there are borders of soil. Grown in

the latter conditions the plants spread readily over the surface of the soil and flower freely. In its coloration and in the form of its corolla the flower is a marked contrast to *T. Fournieri*, which is commonly met with in gardens.

LANDOLPHIA PETERSIANA, tab. 8389.—This species is widely spread throughout East Africa, and it has been given many different names from time to time owing to its extreme variability. The species is usually known in East Africa as the "Mpira," and it was first added to the Kew collection in 1879, when seeds were sent from Dr. (now Sir J.) KIRK from Zanzibar. Another plant was received from Kew from the Jardin des Plantes, Paris, in 1892, and this latter plant has been cultivated in the Tropical Economic House, where it flowered for the first time in July, 1910. The flowers are pure white and sweetly scented. The fruit varies from globose to Pear-shaped and is edible. The latex yields a rubber of inferior quality.

MORMODES REVOLUTUM, tab. 8390.—This species from Peru flowered for the first time in this country in July, 1909, in the nursery of Messrs. SANDER & SONS, St. Albans. Another plant which has thriven well in an intermediate temperature, such as is suitable for *Catasetum*, flowered at Kew in January, 1910. *M. revolutum* is allied to the Colombian *M. speciosum*, Lindl. Another species of similar habit is the recently-described *M. Wolteriana*, Krenzl. The flowers of *M. revolutum* are cinnabar-red with a yellow lip, and they appear to be very ornamental.

MUTISIA CLEMATIS, tab. 8391.—This South American member of the N.O. Composite was figured in *Gardeners' Chronicle*, 1889, vol. v., p. 501, fig. 88. It is a decorative climbing plant, which thrives well in a greenhouse, and produces flowers which have very showy ray-florets.

"THE GENUS ROSA."—Mr. MURRAY informs us that he is the sole publisher of this work, not Messrs. HENRY SOTHERAN & Co., as stated on p. 151. Copies of the parts, or of the whole work when it is ready, may be obtained through Messrs. SOTHERAN and other booksellers.

PERSIMMONS.—Under this heading the *Kew Bulletin*, No. 5, 1911, pp. 234-245, contains an article by W. BOTTING HEMSLEY dealing with the Kaki, *Diospyros Kaki*, and some of its allies. Upwards of 40 years ago there was considerable discussion in the horticultural Press (see *Gardeners' Chronicle*, 1870, pp. 39 and 312) concerning the identity and synonymy of the species of *Diospyros* cultivated in France, and the chief disputants were J. DECAISNE and E. A. CARRIÈRE. Without entering into the whole question, it may be stated that CARRIÈRE, who held, for those days, quite heterodox views of species, described one of the cultivated forms under the name of *Diospyros Roxburghii*, which he maintained was less hardy than D. Kaki, and probably the same species as D. Kaki of Roxburgh's *Flora indica*, vol. ii., p. 527. DECAISNE, on the other hand, declared that CARRIÈRE's plant was the true D. Kaki, and that CARRIÈRE had wrought confusion generally in the cultivated species. Mr. HEMSLEY claims to have elucidated the point in favour of CARRIÈRE. *D. Roxburghii* is a native of Eastern India and Western China, and D. Kaki of Eastern China and Japan, broadly stated, but the subject is not yet exhausted. The only herbarium specimen seen of the true D. Kaki from India is from the Rajah's garden at Panukka, Bhotan, collected by W. GRIFFITHS. A copious bibliography of books and papers on the subject includes selection of varieties, cultivation, and preparation and preservation of the fruit.

A PROLIFIC PEAR TREE.—Mr. HENRY STEVENS, the well-known auctioneer of King Street, Covent Garden, has brought to our notice a remarkable exception to the general scarcity of Pears this season. A tree of the variety Williams's Bon Chretien, planted about 40 years ago at Ashford, Middlesex, has fruits hanging in dense clusters. One small branch, not more than 2 feet in length, brought by Mr. STEVENS, had 12 large fruits that turned the scale at 4 lbs., and the tree has numerous other branches similarly well fruited.

GENERAL ALBUM OF CRYPTOGAMS.—Students of the lower plant-organisms will find in the *Album Général des Cryptogames*,* the first part of which has just appeared, an invaluable collection of drawings. The album, which is the work of Dr. HENRI COUPIN, is to be issued in a series of parts, each of which may be purchased separately. The present part contains 15 plates, illustrating the remarkable forms which are met with among the lower groups of the Algæ, namely, the Chrysomonadineæ and the Dinoflagellatæ.

PUBLICATIONS RECEIVED.—*Michigan Agricultural College, Experiment Station.* Bulletin No. 264. Dairy Husbandry Department, Second Report of Grade Dairy Herd, by A. C. Anderson. Technical Bulletin No. 7: Organic Nitrogenous Compounds in Peat Soils, 11, by C. S. Robinson. (East Lansing, Michigan, U.S.A.)—*Illustrations of New South Wales Plants*, by J. H. Maiden. Part III. (Sydney) William Applegate Gullick, Government Printer. Price 3s. per part.—*How to Cook Vegetables*, by C. Hermann Senn. (London) The Food and Cookery Publishing Agency. Price 2s.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, ante, pp. 64-70)

(Concluded from page 147.)

8, ENGLAND, S.W.

DEVONSHIRE.—The crops of stone fruits are not good for late frosts and cold north winds ruined many of the blossoms. The exceptional hot and dry weather during May and the greater part of July was not conducive to the swelling of the fruits, and many Apples, Pears, and Plums dropped from the trees. Peach trees present a poor and crippled appearance, due largely to the curl or blister disease. Small fruits have been abundant and good, although rains during the third week in June partly spoiled the Strawberry crop. James Mayne, Bilton Gardens, Budleigh Salterton.

The fruit crops generally are good, small fruits being of excellent quality. Frosts and cold north-east winds prevailed whilst Peach and Apricot trees were in bloom, and destroyed many of the embryo fruits. A severe hail-storm early in June disfigured many Apples and Pears. The soil here is somewhat heavy, with a clay subsoil. J. Dunkley, Stokelake House Gardens, Chudleigh.

The fruit crops are above the average, with the exception of Peaches and Nectarines, which were damaged by the severe frosts and leaf-blight disease. Small fruits, including Strawberries, Gooseberries, Raspberries, and Currants, are good and clean, but Pears are scarce. The Apple crop is an exceptionally heavy one. The soil here is very light, resting on the Devonshire waterstone. Geo. Baker, Memblad, Newton Ferrers, Plymouth.

GLOUCESTERSHIRE.—In the early spring the fruit crops were very promising, but long continued easterly winds with frost, followed by drought, spoiled the prospects. At the time of writing there has been no rain in this neighbourhood to any extent for over two months. William Keen, The Gardens, Bowden Hall.

The Apple crop promises to be satisfactory, and we had a very large crop of Gooseberries, but Pears are scarce. Cherry trees

blossomed freely, and apparently the fruits set well, but numbers fell later owing, I believe, to drought. Peaches and Nectarines are failures, owing to frost and cold weather generally whilst the trees were in bloom. Strawberries gave a remarkably good crop. We gathered some exceptionally fine fruits of Laxton's Latest, nine of which turned the scale at a pound. John Banting, Tortworth Gardens, Falfield.

The hardy fruit crops are very satisfactory, although blight made its appearance early on Cherry and Plum trees. Syringings with insecticides and rains from June 20 to 26 corrected this, and the trees are now very clean and healthy. Cherry trees have given a good crop, and Plums are satisfactory. Apple trees are well laden with fruits which promise to be of good quality. Apricots, Nectarines, and Peaches are all poor crops, and Pears also are an under crop, but the fruits are good in quality. Bush fruits, including Currants, Gooseberries, and Raspberries were all very plentiful, and of much superior flavour to last year. Strawberries have been abundant and good in quality. Our soil is a loam resting on limestone rocks, and fruit trees require mulching and copious waterings during dry weather. F. C. Walton, Stanley Park Gardens, Stroud.

Peach, Apricot, and Nectarine trees all flowered profusely, but the blossoms were damaged by late frosts. The crops of Apples and Pears, both dessert and culinary varieties, are good. Bush fruits were plentiful and good, and although Strawberries were late these also were very satisfactory. I find that Givon's Late Prolific and The Bedford are the two best varieties for travelling a distance. Our soil is of a light nature with a stiff, clayey subsoil. Arthur Chapman, Westcott, Tetbury.

Gooseberries, Currants, and Raspberries were all record crops, and the fruits were clean. Strawberries were small in size, notwithstanding the plants were watered freely. Aphids have been very troublesome this season. The soil here is a medium loam resting on sand. H. Berry, Higham Court Gardens, Gloucester.

HEREFORDSHIRE.—Apple trees blossomed freely, and some varieties set abundant crops, but the fruits are dropping freely, owing to the drought. Cherries were very fine, being clean and good in size and flavour. Morello Cherries were not so plentiful or so large as last year. Plums are scarce. Red Currants are a heavy crop; white and black Currants were good, but somewhat scarce in places. Gooseberries were fine, and the bushes were not infested with caterpillars this year; they were exceedingly late in starting into growth. The want of rain spoiled the late Strawberries, and the fruits ripened 13 days later than usual. On the whole, the berries were of good quality. Our soil is a cold clay, with a clay subsoil. Thos. Watkins, Newport Hall Gardens, Eardley, R.S.O.

Owing to favourable weather during the blossoming period the trees set very large crops of fruit, but the continued dry weather caused many Apples, Pears, and Plums to drop. Notwithstanding this, there will be good average crops of clean, healthy fruits of these kinds. Strawberries were a heavy crop, the berries being exceptionally good. Small fruits, and especially Raspberries, were all heavy crops. The soil here is of a sandy nature overlying the red sandstone formation. Thos. Spencer, Goodrich Court Gardens, Ross.

Bush trees of Apples are heavily cropped, notwithstanding that many trees during the end of June cast numbers of their fruits. Amongst the best cropped varieties are Warner's King, Schoolmaster, Sandringham, Lane's Prince Albert, Bismarck, Seaton House, Hornead Pearmain, Bramley's Seedling, Blenheim Pippin, Belle de Fontaine, Grenadier, Duchess of Oldenburgh, Cox's Orange Pippin, Ribston Pippin, Worcester Pippin, Sturmer Pippin, Lord Hindlip, Rival, Allington Pippin, King's Acre Pippin, and Braddick's Nonpareil. Pear and Plum trees blossomed abundantly, but the flowers lacked vigour, and but few set perfectly. Bush fruits were fairly good, with the exception of Black Currants. Strawberries ripened rather early. Our soil is cold and heavy, and some varieties of Apples are very subject to canker in this district. Thos. Coomber, The Hendre Gardens, Monmouth.

All fruit trees, including Apples, Pears, Plums, and Cherries produced a remarkable wealth of blossom, but, unfortunately, very cold winds, followed by long continued drought, had a detrimental effect on the flowers. Trees of Apple, Plum, and Cherry in particular have suffered severely from attacks of aphids, causing much fruit to fall prematurely, and also hindering the growth. Where sprayings have been practised consistently for the destruction of biting and sucking insects, the crops of Apples, Pears, and Plums are much better than where spraying has been neglected. It is also very noticeable that Apples and Pears are much cleaner than usual, and there is a remarkable absence of scab on the fruits as compared with other seasons. The soil in Herefordshire is, generally speaking, a heavy loam with red sandstone and gravel subsoil, and, therefore, admirably adapted to fruit culture. King's Acre Nurseries, Ltd., Hereford.

SOMERSETSHIRE.—Fruit trees of all kinds flowered abundantly, but the blossom in several cases was injured by cold winds in May, followed by persistent blight. Of small fruits, Red and White Currants suffered most from these causes. Strawberries, Raspberries, and Black Currants were all good crops. Of Apples, Pears, Plums, and Cherries some trees are bearing good crops, whilst others have not a single fruit. George Shawley, Halswell Park Gardens, Bridgwater.

On April 11 we experienced a very cold north-east wind, accompanied by snowstorms; at 5 p.m. 6° frost were registered, with the result that the crops of Peaches and Nectarines out-of-doors are almost failures. All fruit trees showed a great wealth of blossom, but the crops are deficient. Pear trees in many cases show a yellowness in the foliage and we have been recommended to apply a solution of sulphate of iron. Insect pests have been very troublesome, including the Pear slug-worm, for which we find lime-water made from acetylene-gas refuse the best remedy. G. H. Head, Kingsdon Manor Gardens, Taunton.

WORCESTERSHIRE.—Except in one or two instances the fruit crops are good, considering the prolonged drought and a "blizzard" in April. The blizzard was responsible for the failure of the Peach crop, notwithstanding the trees were protected with three thicknesses of netting, the best protective material at my command. Apples are healthy, and the crop of these fruits is a good one. The trees were sprayed with lime and salt wash for the destruction of the Apple Psylla. I recommend this specific to all fruit-growers. "Medela" prevents blight on Peach trees, and is also to be recommended. Of small fruits, Black Currants are the worst crop. These were also affected by the cold weather in April. Spraying with Quassia Extract cleared the bushes of aphids. A. Young, Witley Court Gardens, Worcester.

The Apple crop is, on the whole, disappointing after such a profusion of blossom. There seemed to be a deficiency of potent pollen, resulting in the wholesale dropping of the embryo fruits. This, I believe, was mainly due to the cold, sunless summer of 1910. Although spraying was practised thoroughly in the spring, insects of all kinds, and especially aphids, were never more plentiful or persistent in their attacks, being favoured by climatic conditions. We used various insecticides, but found nothing better than cold water applied with force from a hose, and, whenever possible, on succeeding days. Pears were also greatly thinned by the ravages of the Pear midge. Stone and wall fruits generally are very unsatisfactory after a most promising appearance at the time of blossoming. Strawberries and other small fruits were abundant but soon over, the crops of later varieties being almost failures owing to the drought and heat. W. Crump, Madresfield Court Gardens, Malvern.

WALES.

DENBIGHSHIRE.—Fruit trees generally blossomed well, but many of the fruits fell, especially Peaches and Nectarines. Our soil is of a light nature and the subsoil is sandy. J. Martin, Bryn Estyn Gardens, Wrexham.

The fruit crops are not nearly so good as we expected, considering the wealth of

* By H. Coupin. Published by E. Orhac, Paris. Price per post 2 francs 50.

blossom on all the trees. Some varieties of Apples are carrying good crops, but others are bare of fruits; some old, unpruned trees in cottage gardens are laden. The crops of Peaches, Nectarines, and Apricots are complete failures, owing, no doubt, to frosts when the trees were in flower. Plums and Cherries failed to stone and soon dropped from the trees. Small fruits are, on the whole, very good. The drought during May and part of June is the chief cause of the failures in the fruit crops. The soil in this district varies greatly; in these gardens is a stiff clay. *J. A. Jones, Chirk Castle Gardens.*

FILTHSHIRE.—The fruit crops are not so good as they promised at one time. Many Apples dropped through the effects of the drought. Pears and Plums are poor crops and Peaches are a failure, which I attribute to cold and wet weather when the trees were in bloom. Apricots are very good, also Red Currants, and we have a very good crop of Figs. Our soil is a strong loam. *James Barnard, Mostyn Hall Gardens.*

GLAMORGANSHIRE.—The fruit crops are very disappointing, especially after the good promise in early spring. Apple trees are carrying an average crop and the fruits are very clean. Pears, Plums, and Cherries are very light crops. Peaches and Nectarines are very good; the fruits are clean and the trees are carrying liberal crops. Strawberries have yielded an excellent crop of very fine berries. All small fruits are good and plentiful. *R. Milner, Margam Gardens, Port Talbot.*

—The Apple, Pear, and Plum crops are very small, bush fruits and Strawberries were plentiful and good. Pears and Nectarine trees are looking well and quite free from blight, but the crops are under the average. Morello Cherries were good, but the crop of sweet Cherries was a failure. *C. T. Warmington, Penllergar Gardens, Swansea.*

MERIONETHSHIRE.—The fruit trees generally are very clean. The long drought affected the Strawberry crop, and just at the ripening stage the weather was wet and sunless, causing many of the fruits to rot. Loganberries are again a heavy crop. Raspberries and Red Currants were plentiful, and there was a very large crop of Gooseberries. We experienced 5° of frost on the morning of June 15. *John S. Higgins, Rhŷg Gardens, Corwen.*

PEMBROKESHIRE.—The fruit crops, with the exception of Plums, are very fair, especially in well-sheltered gardens and orchards. But this is not a good fruit-growing county, the country being exposed to westerly winds, which often prevail during the blossoming period. Notwithstanding this drawback, a great quantity of fruit might be grown if its cultivation were better understood. Those who adopt proper methods generally succeed well. *Geo. Griffin, Slebek Park Gardens, Haverfordwest.*

—Taking the fruit crops generally, the season is a good one. Apples and Pears are average crops and the fruits promise to be of good quality. Stone fruits have seldom set more freely, and Peach and Plum trees are carrying very heavy crops; Cherries, with the exception of Morellos, were plentiful. Figs are plentiful; Gooseberries, Currants, and Raspberries were all heavy crops. Owing to dry weather, when early Strawberries were ripening, the berries were not so fine as usual; later varieties, however, were very good, Givon's Late Prolific and Laxton's Latest being excellent. Our soil is a light loam, resting on slate stone; the garden slopes to the south, and hardy fruits succeed well here. *W. A. Baldwin, Clynfaw Gardens, Boncath, S.O.*

RADNORSHIRE.—Fruit is, as a rule, plentiful but small, especially Apples. Trees in orchards are suffering from the effects of the prolonged drought, and many cast their fruits when the latter were a good size. Small fruits were plentiful, with the exception of Black Currants. Wall fruits of all kinds are almost total failures; the wood was not thoroughly ripened last autumn. *J. MacCormack, Maeslluch Gardens, Glynbury.*

—Taking the fruit crops all round, the prospects are very good. The district is not an

ideal one for fruit-growing, as we are so subject to frosts in late spring. Plums are the smallest crop; the prospects early in the season were very good, but the continued drought throughout May and June caused the fruit to drop. Our soil is a fairly good loam on the surface, but overlies a hungry, cold, yellow subsoil; the ground is very difficult to work in damp weather. *Wilson Palliser, Horton Manor Gardens, Horton, R.S.O.*

IRELAND.

MEATH.—Gooseberry bushes in this district have been so much affected with mildew that growers have destroyed them in most plantations. The Department of Agriculture has been trying to discover some remedy for the disease, but up to this year without success, as the bushes which have been treated with what the Department recommended and supplied to the owners are the worst attacked bushes to be found. There are Gooseberry bushes growing wild in hedgerows which have been, up to and including last year, covered with mildew, but which to-day are perfectly free from any trace of the disease, though the bushes have never been treated in any way. We had a very bad attack of mildew after the storm of 1859, and in a few years afterwards the mildew disappeared, as it is now doing after the storm of 1905. The Department of Agriculture should not destroy bushes without making compensation to the owners. *Michael McKenna, Julianstown, Drogheda.*

TYRONE.—The fruit crops are somewhat disappointing. After a fine show of blossom and an apparent good set of the fruits a very large percentage of stone fruit were cast when about the size of Peas, owing, I consider, to abnormal heat and drought at the first swelling period. Pears were affected, but to a less extent. It is remarkable that Hesse Pears have failed for the first time for upwards of 20 years. *Fred. W. Walker, Sion House Gardens, Sion Mill.*

WESTMEATH.—The fruit crops are slightly under the average; we have no absolute or even partial failure to record. Gooseberries, however, were very plentiful. Indeed, I do not remember seeing a heavier crop of these fruits. Strawberries also were good. The weather at the time the trees were in blossom was favourable, but the continued drought during May and June caused many of the fruits to drop. Apple trees blossomed profusely, but those of Pear and Plum only moderately. Our soil is a medium to heavy texture, resting on a yellow clay, and it is rather shallow in places. *Geo. Bogie, Pakenham Hall Gardens, Castlepollard.*

CORK.—The fruit crops promised well up to the time of the drought. Pears suffered much from late spring frosts. Apples have been affected by attacks of the codlin moth, numbers of the fruits having fallen from this cause prematurely. *M. Colbert, Aghern, Conna.*

—All fruits were very promising early in the season, but the crops suffered from the long-continued drought. Strawberries ripened very quickly and the season of these fruits was very short. Aphis has been very prevalent on Plum, Cherry, and Black Currant trees. Excellent results have been obtained where mulching was practised early in the season. *J. Downmeyer.*

KILDARE.—The fruit crops are very disappointing, after an abundant promise early in the season; the failure is due, more or less, to the long period of drought. The rainfall here for the past three months amounted to only 5.13 inches, and the greater part fell in small quantities, so that the moisture never reached the roots of the trees. *Fredk. Bedford, Straffan House, Co. Kildare.*

WATERFORD.—The fruit crops are only about half the average, with the exception of Strawberries, which were both numerous and good. Plums, with the exception of Victoria and Damsons, are scarce. The promise for a good fruit year was excellent at the blossom stage, and there were no late frosts; indeed, we experienced an unusually mild spring and the rainfall was small. *D. Crombie, Curraghmore.*

CHANNEL ISLANDS.

GUERNSEY.—The prospect for good fruit crops was exceedingly favourable at the commencement of the year, but the weather at the time of blossoming was adverse to the fruits setting, with the result that we have crops which are scarcely equal to the average. *C. Smith & Son, Caldeonia Nursery.*

JERSEY.—The fruits crops are bad, although the prospects were promising at the beginning of the season. We experienced a severe blizzard in the month of April. Strawberries have been very good. Of small fruits, we had no Gooseberries, but Red Currants were fairly good, and Black Currants good. Pears are a very poor crop; Apples are better. Many trees of Peach and Nectarine have died. We have but few Plums. *Thomas Sharman, Imperial Nursery, St. Mark's Road, St. Heliers.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.—A protest has been raised in a portion of the horticultural press against the immoderate charges for admission to this exhibition. It is to be hoped that a full discussion will be invited in the *Gardeners' Chronicle*. The advertised prices of tickets are: first day, £2 2s., second day, £1 1s., third day, 10s. These prices are absolutely prohibitive to the general public, who are well aware that a flower show is scarcely worth visiting after the second day. To justify its grandiloquent title this show should be open on easy terms to the nation, and should provide the greatest possible delight and education to the greatest possible number. The rank and file of the Royal Horticultural Society in particular have a very just grievance in the matter. The R.H.S. Council has supported the exhibition by a subscription of £1,000 and a guarantee of £4,000. The only return for this large grant out of their funds, to the ordinary or "Guinea" Fellows—who constitute the great body of the society—is that they can enter the first day for £1 10s., the second day for 10s. 6d., and at half price the other days. Few will care to go alone; if I take one member of my family the first day the tickets will cost me £5 12s., the second day £1 11s. 6d. I do not hesitate to call these figures monstrous and extortionate. A disagreeable light has been thrown on the character and organisation of the exhibition by a published correspondence between the R.H.S. Secretary and a critic of these charges. The secretary writes that the R.H.S. "has no manner of control whatever over the company." Surely the Council of the R.H.S. before advancing a great sum out of the society's funds, was in duty bound to stipulate that the exhibition should be easily accessible to its Fellows? On the contrary, the secretary concedes that "the directors of the company are free to fix such charges as they think will, from their point of view, prove remunerative." In short, the Council has handed over this money without restrictions to what would appear to be a rich man's exclusive show, got up with a view to a cash profit. The Council, through the secretary, justifies itself by an extraordinary arithmetical fallacy, viz., that in return for this £5,000 the society has reaped £15,712 in reductions on entrance tickets. These figures are a pure illusion. By the same logic if the price of a ticket is £10, and it is offered to me for £7, I gain £3, though I can afford neither the one nor the other. My return is a minus quantity. I lose the Temple Show, which I could enter free, and am allowed to visit this international substitute on the first day—the only day on which I care to go—for £1 10s., or for £3 12s. if I take one of my family. Certainly I shall pay no such sum, and believe my position to be that of three-fourths of the Society. The charges for admission to a similar show held 45 years ago may have been high for all I know, but it is pointless to quote them at this hour, when the whole nation has turned gardener and the strength of horticulture is the man of moderate to small means. Undoubtedly an exhibition on this scale means enormous expense, but it is incredible that it cannot be carried out without such preposterous charges, which, indeed, are likely to defeat their own intention. Even the

giving of the possible profits to horticultural or other charities would not justify the exclusion from the exhibition of the ordinary gardener. The Royal Horticultural Society cannot stand aside and say it has no influence over the promoters of this exhibition. It is British horticulture incorporate as no other society is, and has an influence which cannot be ignored by any "company" if the Council will exert it. In the matter of these charges the Council has a duty towards the public and its own Fellows, which apparently has been forgotten. *G. H. Engleheart, V.M.H.*

GLADIOLI AT THE SHREWSBURY SHOW.—Seldom, if ever, have three finer stands of Gladioli been seen than those staged in the principal class for these flowers at the Shrewsbury show. The judges' task must have been no light one to decide which of the three was the finest. Many of the spikes exceeded 2 feet in length, and some of those in the 1st prize exhibit had 12 to 18 expanded flowers. Messrs. Mair & Son, of Prestwick, N.B., who were awarded the 1st prize, had magnificent spikes of *Dr. Olmsted*, red with pure white blotch; *Gargantua*, carmine; *Maria Theresa*, white with rosy stripes and straw-coloured blotch; *Osmanli*, orange-red, white blotch; and *Jeanie Smith*, scarlet with dark blotch on creamy ground. Mr. Adam Bryden, Innerleithen, who was placed 2nd, staged *Maria Theresa*, *Enchantress* and *Prestwick Gem* in grand form. Messrs. Harkness & Co., Bedale, the winners of the 3rd prize, had several spikes of *Mme. P. Palmer*, rose-suffuted with carmine, and having a cream blotch, in the best condition, and also *Patrie*, rose and violet. Mr. Bryden's 1st prize group of hardy flowers was enhanced by a splendid bunch of *Gladiolus Gargantua*. *F.R.H.S.*

"MIMICRY" IN PLANTS.—It is perfectly true that "certain conditions of life induce in plants definite physiognomies" as stated, but this result is universal wherever similar external conditions prevail. It is most conspicuous in plants growing in excessive drought and in aquatics. The former causes fleshy stems and leaves wherein to store water. Hence they appear in Africa and Mexico. The *Euphorbias* and *Stapelias* and others resemble the swollen *Cactus*, &c., while the *Aloe* mimics *Aga*. Fleshy-leaved *Mesembryanthemums* resemble *Crassulaceous* plants. Similarly, spiny processes are found wherever a greater or lesser degree of drought prevails, as in our *Gorse*, *Needle-furze*, *Rest-harrow*, and *Sloe*. Certain forests are called "Thorn" forests in hot, dry regions of the tropics. The "Holly-leaf" with spiny margin is a type of many genera. It is a matter of nutrition only, and has nothing to do with keeping cows off any more than the "Camel's Thorn," for which that animal has evolved a leathery roof to its mouth according to Petrie. Then there is the "Cupressoid" type, mimicked by *Veronicas* on New Zealand Alps, some even reach the degraded form of a *Salicornia*. The "Ericoid" form is common in S. Africa, so that genera of *Thymelacæ* mimic true heaths, while *E. marifolia*, and one or two more species growing close to water, have lost it, and bear small elliptical leaves. Some *Dicotyledons* growing with grasses have assumed a similar form as the *Stitchwort*, *Lathyrus Nissolia*, &c. Further, this similarity of form under like conditions is carried down into the microscopical structures. Thus, an ordinary leaf has one layer of palisade cells, but in deserts, where the leaves are greatly reduced in size, from two to five layers are common. Moreover, the water-storage tissues which are found in all parts of plants, are marks not of "affinity" but of "adaptation." Similarly submerged plants mimic one another. Numerous *Dicotyledonous* genera of many different families have one or more aquatic species, of which the leaves are finely dissected, or they may take on the linear types as in *Littorella* and *Lobelia Dortmanna* mimicking a *Monocotyledon*. Dwarf, tufted, often moss-like forms are found in Arctic and Antarctic regions, &c. All these and many more imitative plants could be mentioned, but one and all are explained in the same way, viz., self-adaptation to the conditions of life. This was Darwin's own explanation, for he said: "There can be little doubt that the tendency to vary in the same manner has often been so strong that all the individuals of the same species have been

similarly modified without the aid of any form of selection."† The only addition necessary to be made is, that other species of other genera are often modified in precisely the same manner, because the same external conditions act in the same way upon all alike. In other words, living protoplasm is common to all, so that it responds in an identically similar way. *George Henslow.*

CEANOTHUS AS A BEDDING PLANT. In a season of drought, when ordinary summer bedding plants have made but a poor display, even when watered freely, *Ceanothus* have flowered splendidly. The beautiful varieties are well adapted for planting in permanent beds, but I know of no places where they are employed in this manner except Kew Gardens and Gatton Lodge. The shoots need to be pegged to the soil, and the plants cut back each winter, protecting the stools, as is done in the case of the *Fuchsia*. The best variety is *Gloire de Versailles*, the flowers being a lovely shade of greyish blue. *Ceres*, which produces fine heads of soft pink blossoms, may be placed next in order of merit; the variety *Carmen* is practically the same as *Ceres*. Among the newer varieties, *Felibre*, *Ibis Rose*, and *Albert Pittet* have pink, and *Gracieuse*, pinkish-lavender flowers. *Arnoldii* is a fine old variety with flowers of palest grey-blue colour, and very free in blooming. *Pinguet Grindon* is the darkest reddish-pink variety. These named are amongst the hardest varieties. The *Ceanothus* makes a fine wall plant. The deep blue flowers of *Indigo* and *Asteroides* are very beautiful. The double-white variety is very lasting. *Veitchianus*, *papillosus*, *dentatus*, and *divaricatus*, all blue or indigo-coloured varieties, flower profusely on walls in spring. *Geo. Bungard, Maidstone.*

HOLLYHOCK DISEASE.—In reply to Mr. A. C. Bartlett (see p. 114) a damp atmosphere seems to be the most favourable for the spread of *Fusicladium malvacearum*. We find that during the months of May, June, and July, and the early part of August very little of the disease is present, but towards the end of August it begins to spread with amazing rapidity until frosts set in, which checks it somewhat, but it appears again in the early part of the year and, in many cases, throughout the whole summer. During 1909 we discovered a remedy which we first used in that year. The summers of both 1909 and 1910 were wet and cold, yet our plants were not affected after they were treated with the specific, the composition of which is given below. The disease is not less virulent than formerly, but it has been checked largely by our remedy, which we have distributed far and wide. The powder should be applied early in the season and at intervals until the blooms show colour. The new growth that appears at the bottom of the plants after flowering should also be dusted. It is essential to apply the powder in the early stages of the disease (or, better still, before the disease appears); it is no use when the disease is deeply seated so as to perforate the leaf. The mixture is made up as follows:—Slake one bushel of lime and when cool add one bushel of soot, 4 lbs. of flower of sulphur, and 2 ounces sulphate of copper (finely powdered). Pass the mixture through a fine sieve and dust the plants well over with it three or four times during the growing season in the morning whilst the dew is still upon them. *G. Webb, Messrs. Webb & Brand, Saffron Walden.*

THE BEST SINGLE YELLOW ROSES (see p. 123).—In reply to Mr. Correvon, I did not refer to *R. altaica*, this being a white and not a yellow Rose. A feature of *R. altaica* is its jet-black fruits, while the Rose to which I referred bears no hips. *R. pimpinellifolia lutea* is, I believe, synonymous with *R. spinosissima ochroleuca*, and is seldom met with in gardens. It is one of the most beautiful of all the single Roses, the flowers being a rich golden-yellow colour, distinct in every way from the Austrian Briar section. It is an old Scotch Rose, and one that deserves a wider recognition, but its beauty is evidently unknown to the present generation. The Rose I wish to identify is similar in every respect to this, but the flowers are larger and have much more substance in the petals, while the colour is a deeper yellow. I have no doubt that it is of hybrid origin, and

evidently belongs to the *Pimpinellifolia* section, as classified by De Candolle in 1818. *Rosa pimpinellifolia* is apparently easily crossed in a wild state, and has given several natural hybrids. *Dr. Crépín*, of Brussels, in his splendid book, *Rose Hybridæ*, published at Ghent in 1894, quotes many examples; from his list it will be seen that the *Pimpernel Rose* may be crossed with many other kinds of Roses. The yellow *Pimpernel Rose* is probably derived by natural hybridisation from *R. pimpinellifolia* and *R. lutea*, and this assumption is strengthened by the hybrid being sterile to its own pollen. If atavism be a factor in the production of varieties of Roses—and I think there can be no doubt upon this point—we can, through this, recognise the parentage in this particular instance. The single yellow Rose which I have is evidently a natural hybrid between one of the *Pimpernel* Roses and one of the Austrian Briars. The characteristics of these two sections are united in the Rose in question, and it is sterile to its own pollen, but I cannot say yet as to whether it will yield seed to foreign pollen, or whether its pollen will fertilise other Roses. I cannot agree with Mr. Correvon in his statement that *R. berberifolia* is the best of all the yellow Roses, but I admit with him that it is probably the most curious. This Rose differs so widely from all others that at one time it was considered sufficiently distinct to warrant its being placed in a separate genus, but it is now recognised as a true Rose. Superficially its flowers are more like those of a *Helianthemum*, and its single leaf represents the terminal leaflet of an ordinary Rose leaf, there being no development of the laterals. It is, indeed, a curious shrub. With reference to Mr. Brotherton's note on page 134 regarding *R. hemisphaerica*, would he kindly say under which name John de Frangueville mentions it—sulphurea or hemisphaerica? *George M. Taylor, Mid-Lothian.*

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 29.—The Committee of the Royal Horticultural Society met in the Vincent Square Hall on Tuesday last, when displays of considerable interest were contributed in the various sections. There were two outstanding exhibits, first an extraordinary number of new Chinese plants exhibited by the Hon. Vicary Gibbs, and, secondly, a magnificent collection of fruit trees in pots, contributed from the Feltham nurseries of Messrs. James Veitch and Sons, Ltd.; in both these instances Gold Medals were deservedly awarded.

Turning to the novelties, there was an interesting and new bigeneric hybrid, exhibited before the ORCHID COMMITTEE by Mr. Graire, of Adonis. This plant is to be known as *Adiotsa*. *Adiotsa*, and is the result of a cross between *Ada aurantiaca* and *Cochlidia Noezliana*. Another interesting plant exhibited before the ORCHID COMMITTEE, namely, *Houlletia Wallisii*, received an Award of Merit; this we figure in the present issue. The FLORAL COMMITTEE recommended four Awards of Merit to varieties of *Dahlia*, two Awards of Merit to varieties of *Nymphaea*, and an Award of Merit respectively to a pure-white variety of *Hibiscus syriacus* and a pretty, yellowish variety of *Gladiolus*. The FRUIT AND VEGETABLE COMMITTEE recommended an Award of Merit to a new Plum. Descriptions of these novelties are given below. On this occasion there was no afternoon lecture.

Floral Committee.

Present: H. B. May, Esq. (in the Chair); and Messrs. J. Green, C. T. Drury, G. Reuthe, G. Paul, J. Hudson, R. C. Notcutt, W. Bain, Chas. Dixon, H. J. Cutbush, A. Turner, W. Cuthbertson, Chas. E. Pearson, W. P. Thomson, E. H. Jenkins, Wm. J. James, R. Hooper Pearson, J. W. Barr, A. Kingsmill, and W. Howe.

To those unacquainted with the enormous number of new plants collected by Mr. E. H. Wilson in China, the large exhibit of trees and shrubs from this source shown at this meeting by the Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett), would be a revelation. The collection occupied the wall space for the whole length of the hall—some 130 feet long by 10 feet wide. Not only did the group

* *Gardeners' Chronicle*, August 19, p. 135.

† *Origin*, &c., 6th edition, p. 72.

contain very many rare and interesting plants, but its skilful arrangement rendered it attractive to even the most casual visitor. At the back there were large plants of *Rubus* of various forms, some erect in growth, others with pendulous branches, and tall pillars of *Vitis*, with large leaves, were interspersed with the plants of *Rubus*. Here and there in the group were placed such handsome foliaged trees as *Catalpa vestita*, with smooth pale green leaves, more pointed in shape than those of the better-known *Catalpas*; *Hydrangea Sargentii*, which has leaves a foot long and 9 inches broad; *Ailanthus Vilmoriana* and *Rhus vernicifera*, bearing long pinnatifid leaves of rich green. The face of the collection was tastefully broken by graceful pillar-trained plants of various genera.

Probably the most interesting species were the

a plant giving edible fruit, whilst *Rubus* 815 has, both here and as planted at Aldenham House, almost glaucous white branches in the way of *R. leucodermis*. Of *Sorbus*, those numbered 1015, 922, and 1255 had distinct and ornamental foliage, and will probably be welcome additions to our moderately-sized foliage trees. Of *Berberis*, the variety 1,137 appeared distinct and good.

There was also a distinct *Privet*, 1,075, in the way of *Ligustrum Delavayi*, and a very beautiful *Hypericum*, 256, which grows a moderate height, and then the flower-shoots fall over with a pendulous habit.

Of plants which showed tinted foliage, which will probably be of some value for autumn colouring, were *Acer Davidii*, *Liquidambar formosa*, and *Eurotia* 253. Amongst climbers,

named *Cephalotaxus*. But, as many new Conifers, especially of Silver Firs, were discovered by Mr. Wilson, we may confidently look forward to the future. So large and fully established were many of the specimens shown that it was astonishing to learn that the seeds from which they were raised were only sown three years and eight months ago. (Gold Medal.)

Col. LOCKWOOD, Bishop's Hall, Romford, showed 28 standard trained plants of *Acalypha hispida* (Sanderiana) of such high quality as has probably never before been seen. The 7-feet high plants were only 10 months old, and their stout, clean stems bore large, well-balanced heads, from which depended numbers of very long tassels of bright flowers. (Silver-gilt Flora Medal.)

Messrs. CARTER PAGE & Co., London Wall, staged a most comprehensive collection of Dah-



[Photograph by John Gregory.]

FIG. 82.—GROUP OF NEW CHINESE PLANTS EXHIBITED AT THE R.H.S. MEETING ON TUESDAY LAST BY THE HON. VICARY GIBBS.

Hydrangeas, *Cotoneasters*, *Rubus*, *Sorbus* and *Berberis*. Of the *Hydrangeas*, most of the species have to be seen in flower, but a specimen of *Hydrangea Sargentii* leads us to think that it will be one of the finest of the genus. It has huge flowers, the centres of which are blue and the outside white, with very large and furry leaves. Of the *Cotoneasters*, *C. humifusa*, a dwarf creeping evergreen, will be useful to cover rockwork, and *C. rugosa Henryi*, a strong-growing variety, has pendant shoots almost like a Weeping Willow, whilst another variety, *Cotoneaster* 1,133a, promises to make a useful variety.

Of the species and varieties of *Rubus*, *R. inominatus*, with large bunches of green fruits, looked as if it might develop into

Hedera 425, *Smilax* 661, and *Acanthopanax Henryi*, with Ivy-like berries, were interesting. *Ailanthus Vilmoriana*, a plant with foliage nearly 4 feet in length and a red mid-rib, already in commerce, will be a noble addition to our trees. *Ilex Fargesii* had long, narrow shoots, and should be valuable for hybridising *Mollies*. *Viburnum* 498 looked as if it would be a useful plant, and *Stranvaesia undulata*, although it has been exhibited before, was shown as a good specimen of the plant. There were several *Roses* which, from their foliage, appear to be distinct species, especially those numbered 1,244 and 1,098. Only two members of the Conifer family were represented, *Cupressus funebris*, still retaining its flat, glaucous, juvenile leaves, and an un-

lias. Their very long array of cut blooms was tastefully arranged and interspersed with growths of *Bulrush* (*Typha*), *Agrostis*, *Zea*, &c. Here there were *Dahlias* to suit all tastes and fancies. The popular *Cactus* blooms were shown in a variety of fine flowers; those which pleased us most were the Rev. J. W. Jamieson, lilac-rose with a deeper edge and yellow tips; *Conquest*, deep crimson-maroon; *White Lady*; *Watford Beauty*, a single deep apricot, having a brownish-red ring around the centre; *Delice*, a rose-pink flower of the decorative type, and *Princess Juliana*, a new decorative *Dahlia* with good, long stalks. (Silver-gilt Flora Medal.)

Messrs. J. CHEAL & SONS, Crawley, Sussex, also showed some choice *Dahlias*. At the back of this firm's exhibit were a few Bamboo stands

filled with good blooms, which added to the attractiveness of the display. Along the front were placed newer sorts in boxes, including Bridesmaid and Killarney. Another box contained splendid blooms of miniature Cactus Dahlias, known as Pompon Cactus varieties; these flowers are very useful for furnishing small vases. Of the many fine, full-sized Cactus flowers, we noted Iolanthe (deep coral-red), H. H. Thomas (rich crimson) and Golderest, Buttercup and Snowdon, whose names denote their colours. (Silver Banksian Medal.)

Selections of new Dahlias were also shown by Messrs. JAMES STREDWICK & SONS, St. Leonard-on-Sea. The varieties Mrs. Stephens (primrose) and Turtle Dove (variable shades of pink) received Awards of Merit. Other good sorts were Cornet (deep terra-cotta), Auckland, Richard Box (good yellow), Olympic, and Golden Plover (buff and yellow).

Messrs. JAMES BOX, Lindfield, Sussex, filled a corner of the hall with a well-arranged group, chiefly composed of cut flowers of herbaceous plants. At the back there were tall stands filled with Rudbeckias, Delphiniums, Heleniums, &c., whilst large masses of Gladiolus princeps and G.

the best of the blue varieties, a very rare colour in Gladiolus. Mrs. F. Field is a large, almost papery-white flower. Royalty, a large spike with huge blooms, would make a fine show in the garden, as also would Countess of Chichester. The Sirdar has smaller flowers of a very rich colour. Prince of Orange is a good buff-coloured Gladiolus, and Kenneth Kelway will find many admirers of its uncommon marking. (Silver Banksian Medal.)

Messrs. JAMES VEITCH & SONS, Chelsea, had a collection of Cannas and miscellaneous plants. There were some good standard plants of blue and white Plumbago capensis, and at one end a well-flowered little batch of Rhododendron javanicum-jasminiflorum hybrids. Hibiscus sinensis supplied vivid colouring, and there was a batch of Crowea latifolia (C. saligna), a pretty greenhouse shrub, bearing pink flowers. (Silver Banksian Medal.)

Messrs. H. B. MAY & SONS, Upper Edmonton, filled a large table with shrubby Veronicas and Ferns. The Veronicas were short, stocky plants, chiefly in 6-inch pots, and bore quantities of flowers. The best varieties were Valere (rich blue), Pearl (rose-pink), Violette, Grandis (blue), Eveline (pink), and Admiration (blue). These

shown under numbers. Next to the Delphiniums, Messrs. PERRY arranged a collection of Nymphaea blooms, surrounded with appropriate plants. (Bronze Banksian Medal.)

Some enormous Nymphaea flowers were exhibited by LEOPOLD DE ROTHSCCHILD, Esq., Gunnersbury House, Acton (gr. Mr. J. Hudson). They consisted of six varieties, Awards of Merit being made to two of them. The finest of the remaining four was N. Attraction, which resembles N. atropurpurea, except that N. Attraction is of a deeper colour, and the flowers much larger. N. Galatee is a rich Indian-yellow Nymphaea, with narrow petals of stellate form. N. candidissima rosea resembles N. Marliacea rosea, but is of a brighter colour. Paul Heriot is a finely-formed flower, with massive petals of an orange-red shade.

Mr. G. KOZUMI, 35, Beesborough Gardens, London, staged a few dwarf Japanese trees, chiefly conifers.

The GUILDFORD HARDY PLANT NURSERY staged a collection of hardy cut flowers. The white Lavender was well shown, as also were Gentiana asclepiadea alba and Buddleia magnifica; the last named bore large spikes of bloom.

Mr. G. REUTHE, Fox Hill Nursery, Keston, arranged a collection of choice Alpine and border plants; amongst them we noted the rare Ephedra monostachya, bearing its large, red fruits.

Messrs. WHITELEGG & PAGE, Chislehurst, Kent, staged a group of bedding Pelargonium Salmon Paul Crampel, a new colour, with all the merits of the type.

Mr. L. R. RUSSELL, Richmond, arranged a very large collection of exceedingly well-grown pot plants of Celsia pyramidalis plumosa hybrids. These were attractively set up in distinct colours, interspersed with a few well-flowered plants of Gesnera Orange King.

AWARDS OF MERIT.

Nymphaea "Mrs. Richmond" (see fig. 83).—This hybrid is one of the last introductions of the late M. Latour-Marliac, and in its colour one of the finest Nymphaeas yet raised. It may be described as a glorified N. Laydekeri rosea in form and colour. The flower exhibited measured 8 inches in diameter, and it possessed wide and massive sepals and a greater number of petals. The colour is a bright, rosy pink, which deepens with age; the stamens are of a rich golden yellow. Exhibited by LEOPOLD DE ROTHSCCHILD, Esq., C.V.O., Gunnersbury House, Acton, W. (gr. Mr. Jas. Hudson).

Nymphaea Gladstoniana.—This is the finest, pure-white Water Lily yet exhibited, without a semblance of pink upon the sepals, which are tinged with green, thus adding to its beauty. It is a bold and massive flower that, when fully expanded, would measure 9 inches across. The sepals and petals are broad and possess great substance. In growth the plant is most vigorous, with foliage fully 18 inches in diameter. Origin not recorded. Exhibited by LEOPOLD DE ROTHSCCHILD, Esq.

Dahlia "Bridesmaid." This is a single flower of good form and peculiar metallic shade of salmon-pink, passing to orange in the centre. From Messrs. J. CHEAL & SONS.

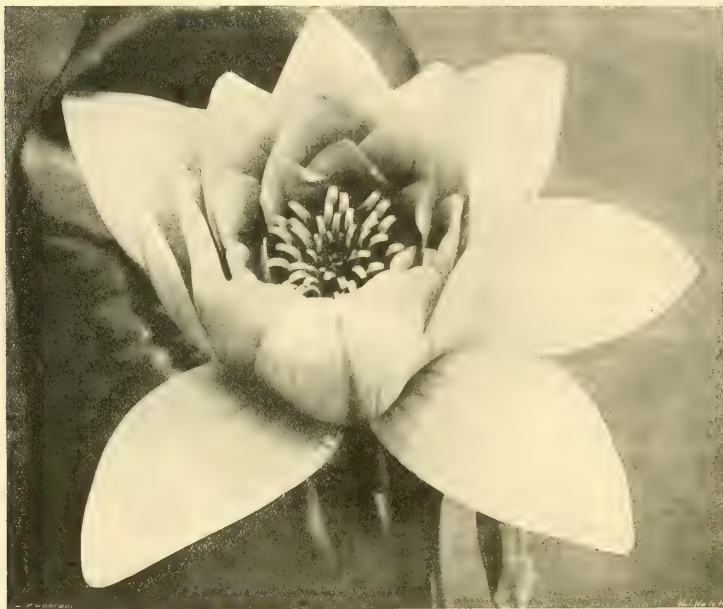
D. Killarney.—A single flower of light terra cotta colour with orange-crimson band around the disc. From Messrs. J. CHEAL & SONS.

D. Mrs. Stephens.—A Cactus flower of very pale shade of lemon deepening in colour towards the centre. From Messrs. J. STREDWICK & SONS.

D. Turtle Dove.—A Cactus flower, white, flushed and shaded with crimson. Shown by Messrs. J. STREDWICK & SONS.

Hibiscus syriacus "Snowdrift."—This variety of the hardy Hibiscus, known in many gardens by the older name Althea frutex, has pure-white flowers without the semblance of a tint. It is a variety that may be commended to all who cultivate any form of the species. Shown by Mr. R. C. NORCUTT.

Gladiolus "Yellow Beauty."—This variety has a long spike of large flowers with petals of considerable substance. The colour is sulphur-white, tinted, particularly in the lower segments, with yellow and showing a little purplish-red colour lower down in the interior of the flower. Shown by Messrs. KELWAY & SON.



[Photograph by John Gregory.]

FIG. 83.—NYMPHÆA "MRS. RICHMOND": COLOUR ROSE-PINK WITH YELLOW STAMENS.

(Received R.H.S. Award of Merit on Tuesday last.)

America occupied more prominent positions. Delphiniums of good form, various Gaillardias, and Montbretia pyramidalis were also especially good. This firm also staged a collection of perennial Phloxes; particularly fine were Iris (deep heliotrope), General von Heutz, Rheingau (large white flowers with bluish eye), and Selma (a fine pink flower with cherry-red eye). (Silver Banksian Medal.)

To the left of the entrance Messrs. W. CURRIST & SON, Highgate, set up an attractive display, chiefly of cut flowers, in the style of an exhibition competitive group of plants. The middle front was occupied by a collection of Nymphaeas in a pool of water; behind the Water Lilies there was a pleasing group of Lilium sulphureum. Tall epergnes decorated with various flowers, the most striking being one with Liatris pycnostachya and Gypsophila paniculata, with a few spikes of Montbretia, took the place of the standard Codiaums. Masses of Helenium Riverton Beauty arranged in the form of two mounds were very attractive. (Silver Banksian Medal.)

Messrs. J. KELWAY & SON, Langport, again staged a fine collection of Gladioli. Azurea is

free-flowering shrubs are not generally hardy. Still, they are valuable for furnishing cool greenhouses in localities where they cannot be grown out-of-doors. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, staged a representative collection of dwarf, free-flowered Cannas. Jewess (pale red spots on a yellow ground), Jean Monval (rich red self), Julius Mez (orange spots on a deep-yellow ground), and Giant Crimson are but a few of the many fine sorts shown. (Silver Banksian Medal.)

Messrs. T. S. WARE, LTD., Feltham, arranged a collection of hardy cut flowers. Stokesia Cyanea, with single blue flowers, reminiscent of those of the Globe Artichoke, and having the habit of single Asters, was very striking. Cassia marylandica is inferior to Cassia corymbosa. Helenium Riverton Gem was shown in good colouring, and Liatris pycnostachya, as well as the more loosely-flowered L. spicata, were especially noteworthy. (Bronze Banksian Medal.)

Mr. AMOS PERRY, Enfield, had a fine stand of attractively-arranged Delphiniums, interspersed with various grasses. Besides many standard named sorts, some good seedlings were

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), W. H. White, W. Bolton, Gurney Wilson, H. G. Alexander, Arthur Dye, W. H. Hatcher, W. P. Bound, J. Charlesworth, W. Cobb, J. E. Shill, A. A. McBean, and Stuart Low.

The Duke of MARLBOROUGH, Blenheim (gr. Mr. Hunter), was awarded a Silver-gilt Flora Medal for a very fine group of *Vanda cœrulea* effectively arranged with *Nephrolepis todæoides*, and having graceful Cocos Palms at the back. There were some 80 well-grown plants of *Vanda* furnished with strong spikes of sky-blue flowers having violet-coloured labellums, the exhibit being the more meritorious because the excessively warm weather for several weeks past has been very trying to Indian Orchids from high altitudes.

Whitei, several *C. Thurgoodiana*, *Odontoglossum Harryanum*, *O. grande*, *Oncidium luridum* guttatum, *O. Lanceanum*, various *Cypripediums*, and among species, *Bulbophyllum papillosum*, *Bifrenaria tetragona*, the handsome *Dendrobium MacCarthiae*, *Peristeria elata*, and the singular little *Masdevallia simula*.

Messrs. HASSALL & Co., Southgate, were awarded a Silver Banksian Medal for a group in which the various forms of their pretty *Cattleya iridescens* (bicolor \times Eldorado) were prominent, the pretty, golden-tinted or rose-coloured flowers formed like those of *C. Iris*, varying considerably in tint, the fronts of the labellums being generally lively ruby-red. Others noted were *C. Thurgoodiana* and a pretty cross between *C. Myra* Peeters and *C. granulosa*; *Lælio-Cattleya Issy*, *L.-C. elegans Harrisii* (a good form, of bright colour), *L.-C. Walteri* Gott (in several varieties), *Stanhopea Wardii* oculata, several good specimens of

Messrs. SANDER & SONS, St. Albans, showed *Catasetum reflexum*, a very singular species with greenish sepals and petals barred with purple and having a much-divided labellum.

Messrs. JAS. VEITCH & SONS, Chelsea, showed two fine specimens of *Lælio-Cattleya Dominiana* with large flowers, the sepals and petals of which were bright rose, the showy labellums purple.

A NEW BIGENERIC HYBRID.

Monsieur HENRI GRAIRE, Amiens, showed *Adoda* St. Fuscien (*Ada aurantiaca* \times *Cochlidoda Noëdiana*), a singular, small-flowered hybrid with nearly equal, lanceolate, red sepals and petals and yellowish, trilobed lip tinged with red.

AWARDS.

AWARD OF MERIT.

Houlletia Wallisii (see fig. 84) from Messrs. CHARLESWORTH & Co., Haywards Heath.—A very



FIG. 84.—HOULLETTIA WALLISII AS EXHIBITED BY MESSRS. CHARLESWORTH AND CO.
(Increased L.H.S. Award of Merit on Tuesday last.)

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for an effective group. In the centre was a fine plant of *Oncidium luridum* guttatum, with a branched spike of yellow and brown flowers; beside which were several plants of *Dendrobium Phalaenopsis Schradernianum*, varieties of *Cattleya Iris*, a magnificent plant of *Aerides Sanderianum*, *Houlletia Brocklehurstiana*, and the rarer *H. Wallisii* (see Awards), *Miltonia Schroderiana* with a spike of 14 flowers, *Renanthera Imschootiana*; and among hybrids *Sophro-Lælia Gratrixia*, *Sophro-Cattleya de Vere Beauclerk*, *Sophro-Lælio-Cattleya Marathon*, and other *Sophrontis* crosses, all very bright in colour.

Messrs. STUART LOW & Co., Bush Hill Park, staged an effective group, for which a Silver Banksian Medal was awarded. The centre was composed of *Vanda cœrulea*, on each side of which were *Oncidium varicosum*, and in the group were noted *Cattleya Dietrichiana*, *C.*

Oncidium Papilio, and *Miltonia spectabilis* Moreliana.

Mr. E. V. Low, Vale Bridge, Haywards Heath, secured a Silver Banksian Medal for a group, principally of hybrid *Cattleyas*, which included very fine forms of *C. Adula* and *C. Iris*, several specimens of *C. Pittiana*, *C. Gaskelliana* Phyllis (a very attractive light variety) and selections of *Brasso-Cattleyas* and *Cypripediums*.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed the inflorescence of a new form of *Dendrobium undulatum*, differing from the brown-tinted ordinary form in having the flowers of a pale-yellowish-green colour.

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. J. M. Black), showed an interesting collection of hybrids, which comprised several good plants of *Cattleya Adula*, *C. Pittiana*, *C. Roupelliana*, and the pretty *Odontodia Thwaitesii*.

interesting and rare species, originally described by the late Professor Reichenbach in the *Gardener's Chronicle*, June 5, 1869, p. 611, but which, until now, seems to have been lost to gardens. Of it the author remarks: "A mystery that this showy plant was discovered. It has much of the character of *Houlletia*, and something of that of an *Acineta*. Or is it a mule? Whether that be so or not, it is highly interesting, and is dedicated to the energetic and happy discoverer." In habit the plant resembles *H. Brocklehurstiana* and others of the section which have tall, erect spikes. In *H. Wallisii* the inflorescence is short and decumbent, the large, wax-like flowers, which have a general resemblance to those of an *Acineta*, being of a pale yellow with purple marks on the inside.

CULTURAL COMMENDATION.

TO MESSRS. CHARLESWORTH & Co. for a magnificent plant of *Aerides Sanderianum*

(*A. Lawrencei Sanderianum*) with four spikes. The main difference between this and typical *A. Lawrencei* is that in *A. Sanderianum* the flowers have a clear yellow ground, while in *A. Lawrencei* the ground is white.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); also Messrs. J. Cheal, H. H. Williams, W. Bates, A. Dean, J. Willard, G. Kelf, E. Beckett, G. Reynolds, G. Wythes, J. Jacques, A. W. Metcalfe, and W. E. Humphreys.

Messrs. LAXTON BROS., Bedford, showed several seedling Plums, one of which received an Award of Merit. The others were a fine, oval-shaped, purple fruit, having a yellow flesh, named *Prosperity* (raised from Grand Duke x Czar) and Red Gage, a round, medium-sized fruit of pleasant flavour, the parents being Grand Duke and Greengage. It was decided to send a small deputation of the Committee to inspect the cropping and other qualities of the trees before making awards to these. This firm also showed several seedling Apples. One, named *Laxton's Red*, was very like the old Quarrenden in appearance, the parents being Red Quarrenden and Allington Pippin. Others were Primate, resembling the latter in shape, and Record, a seedling from Lord Suffield and Emperor Alexander, the fruits much resembling those of Duchess of Oldenburg. Messrs. LAXTON BROS. were asked to exhibit the fruits again at a later date. This firm also showed fruits and fruiting branches of the Laxtonberry. The berries are large, bright red, and very juicy, but rather acid. It was raised from the Loganberry, crossed with Superlative Raspberry. The exhibitors were invited to send plants to Wisley, where a trial of brambles will be conducted next year.

Mr. A. A. HUMPHREY, 9, Victoria Street, Westminster, showed plants of Maize and green Cobs of the same which had been grown on a house roof at Westminster.

A magnificent collection of some 120 fruit trees in pots was exhibited by Messrs. JAS. VEITCH & SONS, LTD., from their Feltham nursery. The exhibit represented the finest collection of its kind seen at Vincent Square, the trees generally being wonderfully cropped with fine fruits. In the centre were some grand Peach trees, including a splendid specimen of Duke of York variety. Other Peaches included Sea Eagle, Marquis of Downshire, and Late Devonian. Plums included profusely fruited trees of Early Transparent Gage and Jefferson. Pears also were numerous, and included heavily-fruited trees of Doyenné du Comice, Louise Bonne of Jersey, Williams's Bon Chrétien, Marguerite Marillat, Souvenir du Congrès, Conference, Dr. Jules Guyot, and Clapp's Favourite. The only Apple tree was a single cordon plant 3 feet in height of the variety Rev. W. Wilks, carrying seven fine fruits. There were choice gathered fruits of Lady Sudeley Apple and some superb Pears. (Gold Medal.)

Messrs. H. CANNELL & SONS, Swanley, showed 80 dishes of Apples and a few Plums. These were backed by a row of dwarf Apple and Pear trees in pots. Specially fine cooking Apples being seen in the varieties The Queen, Peasgood's Nonsuch, Warner's King, Stirling Castle, Lord Suffield, Lord Grosvenor, Grenadier, Norfolk Beauty and Ecklinville Seedling. Of dessert varieties there were excellent fruits of Allington Pippin, Margil, Benoni, Duchess's Favourite, Cox's Orange Pippin, Worcester Pearmain, and Rival. Plums were represented by Reine Claude Violet, Mallard, and Jefferson. (Silver-gilt Knightian Medal.)

Messrs. SPOONER & SONS, Hounslow, staged a collection of 40 dishes of hardy fruits, chiefly Apples, including (culinary) Potts's Seedling, Frogmore Prolific, Lord Suffield, Norfolk Beauty, Lord Grosvenor, and Stirling Castle, and (dessert) varieties Carlisle Castle, Jas. Grieve, Benoni, Williams's Favourite (resembling Beauty of Bath), Rival, Early Strawberry, and Quarrenden. (Silver Knightian Medal.)

Messrs. CARTER, PAGE & CO., London Wall, exhibited a collection of 400 dishes of Tomatoes, chiefly red-skinned varieties; the fruits were small. At the back were numerous racemes of the pretty Red-Currant Tomato. In dishes were fruits of Filbasket, Dobbie's Earliest, Champion, Sunrise, Masterpiece, Ham Green Favourite, Wonder of Italy, Lemon Blush, Greengage and Yellow Plum, the last three being yellow varieties. (Silver Banksian Medal.)

Messrs. DOBBIE & CO., Edinburgh, exhibited a fine collection of Potatoes in baskets, each containing about 50 tubers. Fine white varieties were seen in Talisman, The Scot, The Admiral, Midlothian Early, Milecross Early, Duke of York, Sir J. Leewellyn, and Sharpe's Victor, whilst coloured varieties were represented by King Edward VII., Purple Eyes, Selected Russett, Eighty Fold, Adirondack, Crimson Beauty, Herd Laddie, and Mr. Bresse. (Silver Banksian Medal.)

AWARD OF MERIT.

Plum Blackbird.—The fruits of this new variety of Plum are borne in great profusion; they are of a medium size, rather long-oval in shape, and of a purple colour. The flesh is of excellent quality for cooking purposes. It was raised from The Czar x Curlew. (Shown by Messrs. LAXTON BROS., Bedford.)

ABERDEEN ROYAL HORTICULTURAL.

AUGUST 17, 18, 19.—The annual show of this society was held on these dates in the Duthie Public Park, Aberdeen. In point of quality, the exhibition was superior to those of former years; the entries numbered more than 1,600. The secretary and treasurer is Mr. J. B. Rennett, advocate, Aberdeen.

The exhibits of pot plants were the best ever seen at Aberdeen. The specimens were numerous, well grown, and very effectively shown. In the class for four specimen plants in flower (Orchids excluded) Mr. J. LEGGAT, gardener, Balgowrie House, Aberdeen, was awarded the 1st prize, a finely-grown specimen of *Statice profusa* in his collection being much admired. Mr. JOHN ELDER, gardener, Norwood, Cults, Aberdeenshire, was placed 1st for four specimen foliage plants. The best specimen plant in flower was shown by Colonel GILL, of Dalhelly (gr. Mr. Alex. Brebner), in a finely-coloured and generally well-grown plant of *Diss grandiflora*. Mr. ADAM MAITLAND, Rublaw Den House, Aberdeen (gr. Mr. Alex. Duncan), led in the class for a specimen foliage plant with a fine Maranta. Ferns were shown well. Colonel GILL, with *Adiantum cuneatum* and *A. gracillimum* well merited the leading place. Zonal-leaved Pelargoniums were an outstanding feature, and certainly among the finest ever seen at Aberdeen. Mr. J. D. BRECHIN, gardener, Ardoe, Belhelvie, Aberdeenshire, worthily won the 1st prize in this section. Mr. GILLESPIE, Northfield, Aberdeen, showed the best *Fuchsias*, and Mr. BRECHIN the best *Liliums*. Begonias, both single and double-flowered, made a good show, the premier prizes being shared by Mr. W. DICK, gardener, Queen's Road, Aberdeen, and Mr. GEORGE DAVIE, gardener, Hilton House, Woodside, Aberdeen. Gloxinias were specially well shown, and Colonel GILL, of Dalhelly, won the 1st prize in the class for these flowers. Exhibits of cut flowers were of exceptional merit. In the class for 18 Rose blooms, distinct, a silver cup was given by Messrs. James Cocker & Sons, Aberdeen. Colonel GILL, Dalhelly (gr. Mr. Brebner), won the trophy with an exceptionally fine exhibit. For six bunches of decorative Roses, Colonel GILL again showed the capital-grown flowers and carried off the society's silver medal. Exhibits of Potted Dahlias were fairly numerous, Mr. J. M. DIXON, Nelfield, Aberdeen, being placed 1st for these flowers. Cactus Dahlias were well shown; Mr. W. FLOCKHART, Craigie-buckler Cottage, Aberdeen, won the 1st prize with choice blooms. The collections of 20 varieties of cut flowers and fine foliage bedding plants, including annuals, formed a fine feature in this section. Mr. THOMAS OGILVIE, of Kepplestone House, Aberdeen (gr. Mr. Alexander Douglas), won the 1st prize with a choice exhibit; 2nd, Mr. LEDINGHAM, Queen's Road, Aberdeen (gr. Mr. W. Dick). Mrs. DUNBAR DUNBAR, of Seapark, Forbes, N.B. (gr. Mr. J. Gregor), won the silver cup presented by Messrs. W. Smith & Son, seedsmen, Aberdeen, for the best 16 bunches of Sweet Peas, distinct. The blooms were of large size and richly coloured. Sir THOMAS BURNETT (gr. Mr. Petrie) followed closely. One of the best features in this section was the table decorations. Mr. W. CORMACK, Prospect Cottage, Dyce, Aberdeenshire, won the 1st prize with an arrangement of self-coloured Sweet Peas, set in sprays of light *Gypsophila paniculata*.

FRUIT.

The quality of the fruit was well up to that of former years, hardy fruits being especially fine. Mr. HARPER, gardener, Tulliebelton, Perth, showed the best collection of hardy fruits, his Apricots and Plums being exceptionally good. Black Currants have never been shown finer in the north. Those exhibited by Mr. JAMES FERGUSON, Linton House, Sauchen, Cluny, N.B., were as large as Gooseberries and finely flavoured. He won the 1st prize easily. Grapes were limited in number, but good. Sir THOMAS BURNETT, Crathes Castle, showed the best bunches of Muscat of Alexandria and Appley Towers, Mr. JOHN ELDER, gardener, Norwood, Cults, being 2nd with well-finished bunches of Foster's Seedling and Black Hamburg, the latter especially being much admired. Other prominent winners in the fruit classes were Mr. J. LEGGAT, Balgowrie House, for Cherries; Mr. ALEX. MORTIMER, Holburn, for Gooseberries; Mr. W. SCORGIE, Springhill, for Melons; Mr. WILLIAM SMITH, Fintray House, for Peaches and Nectarines; Mr. G. MCLENNAN, Fetteresso Castle, Kincardineshire, for Strawberries and culinary Apples; Mr. W. B. GREGG, Balmie House, for Pears and Nectarines; and Mr. JOHN A. GRIGOR, Seapark, for Tomatoes.

VEGETABLES.

The outstanding feature in the vegetable classes was the display of Potatoes. First prizes for Potatoes were won by Mr. H. B. SMITH, Burdshaugh, Forbes, N.B.; Mr. FERGUSON, Linton House; Mr. ALEX. DOUGLAS, Kepplestone House; Mr. WILLIAM MILNE, Carsindae House, Midmar; Mr. JOHN A. GRIGOR, Seapark, Forbes; and Mr. WILLIAM WEBSTER, Muirisk, Turiff, N.B. For the best collection of vegetables the Misses MCLENNAN, Springhill, Aberdeen (gr. Mr. W. Scorgie), won the 1st prize easily.

NURSERYMEN'S CLASSES.

Messrs. JAMES COCKER & SONS, Springhill and Sunnyside, Aberdeen, carried off for the third year in succession the society's silver challenge cup offered for the best collection of 36 Roses. The cup now becomes their absolute property. 2nd, Messrs. ADAM & CRAIGMIL, who were placed 1st for 24 Tea or Noisette Roses.

The amateurs made a highly creditable show, Mr. GEORGE MAITLAND, Woodside, Aberdeen, won the Ogilvie Cup for the third time in succession for a fine group of plants. The cup now becomes Mr. MAITLAND's own property.

NON-COMPETITIVE DISPLAYS.

Exhibits were staged by the leading nurserymen, seedsmen, and florists in and around Aberdeen, including Messrs. W. SMITH & SON, Aberdeen; Messrs. JAMES COCKER & SONS, Springfield and Sunnyside; Messrs. BEN. REID & CO., Pinewood; Mr. SINCLAIR, Union Street, Aberdeen; and Mr. DUSTAN, Holburn Nurseries, Aberdeen.

BERKSWELL, BALSALL AND BARSTON HORTICULTURAL.

AUGUST 18.—The annual exhibition of the above society was held on this date. The weather was fine and the show was a decided success. The opening ceremony was performed by Mrs. Feeney in the presence of a company representative of the wide district interested in the day's event.

There were five divisions for exhibitors, and the combined entries numbered about 600. Groups of plants, not for competition, were shown by Mr. J. H. WHEATLEY, Mrs. FEENEY, Mr. HUGH MITCHELL, Mr. G. J. EYSON, and Mr. GUNN, Oulton. A feature in the principal tent was the table decorations. The premier award was won by Mrs. H. REEVE, whose exhibit was of pink Sweet Peas. In Division I, open to amateurs and gentlemen's gardeners, Messrs. HORNSBY, ELLIS and EWEN, and Mrs. SILK were the principal prize-winners for plants, whilst Mrs. BATCHELOR, Mrs. SYNER, Miss GLADSTONE, Messrs. W. WALSHAW, A. DALE, and F. W. ELSON were the chief prize-winners in the cut-flower classes. Sweet Peas were best shown by Mr. H. WILLIAMS. The principal awards in Division 1 (fruit) went to Mrs. SYNER, Mrs. BATCHELOR, Miss GLADSTONE, and Mr. PHILLIPS.

NATIONAL HARDY PLANT.

AUGUST 24.—The members of this Society met in conference on the second day of the Shrewsbury Show in the concert room of the George Hotel, Shrewsbury. Mr. A. J. Macself occupied the chair. The subjects for discussion were "Ways and Means of Advancing the National Hardy Plant Society," and "Possible New Methods of Exhibiting Hardy Flowers." Mr. W. H. Paine, of Tully Nurseries, Kildare, introduced the first subject. He advised the National Hardy Plant Society to find out what is being done by other floral societies to prevent duplicating or overlapping of the work. He said that a body of specialists and experts was needed to protect and foster the interests of hardy flowers, and the National Hardy Plant Society was formed for that purpose. Mr. Paine favoured the sending of deputations from the Society to provincial shows, and suggested that the work in this direction would be forwarded if the deputation could co-opt some of the judges appointed by the society holding the show.

The holding of migratory provincial shows in conjunction with established flower shows would, Mr. Paine said, be an excellent means of advancing the interests of the Society, as it had been in the case of the National Rose, Sweet Pea, and other societies. The speaker emphasised the importance of educational work, and said that the Society's existence would not be justified unless it did good work in disseminating knowledge and information on all matters relating to hardy plants. He was of opinion that steps should be taken to organise a series of lectures by prominent authorities on hardy plants, to be delivered under the auspices of the National Hardy Plant Society before gardeners' societies throughout the kingdom, also to arrange for lectures to be given wherever large and important shows were being held.

In the discussion which followed, Mr. Pinches pointed to the difficulties in adopting the suggestions of the speaker owing to want of funds, and he considered that the most pressing consideration at present was how to obtain new members and subscriptions. Mr. Brunton supported Mr. Pinches, while complimenting the enthusiasm of Mr. Paine, and remarked that the excellent programme put forward should be kept on record to be considered when the Society could afford to do such work.

Mr. Harkness said he was much impressed by Mr. Paine's remarks, and hoped that the Society would be able to proceed, along the lines advocated, in the near future.

Mr. Matthew Todd, Edinburgh, said that nothing can at present be shown to prospective members as to the advantages gained by subscribing to the Society's funds.

The chairman, Mr. A. J. Macself, next read a paper on "Possible New Methods of Exhibiting Hardy Flowers." Mr. Macself pointed to defects in the present system of staging hardy flowers, and condemned the massing of flowers in a restricted space without considering the general effect. He said that what is needed is so to arrange the flowers as to represent a part of a natural border of growing plants, and that anyone who is capable of arranging plants in a border to produce a pleasing effect should be able to display flowers of these plants on a stretch of ground to reproduce the effect of the border. There are many plants, said Mr. Macself, that show to wonderful advantage when growing over a carpet of some dwarf-growing subject. Gladioli, Liliums, or Camassias thinly dispersed over carpets of *Asparagus odoratus*, *Tuercium*, *Scordonia*, the smaller Funkias, *Corydalis*, &c. would be infinitely more interesting than when crowded together as we see them now, and exhibits demonstrating the possibilities in this direction would be of distinct educational value.

Mr. Macself also spoke of the value of colour schemes and the grouping of collections of certain families of plants; he also considered that new and improved varieties of hardy flowers should be shown side by side with the older types from which they have been obtained, or to which they are held to be superior. Other points dealt with were the Violas and the exhibiting of alpine and rock garden plants.

In the discussion which followed Mr. Frank Bouskell said it would without doubt add immensely to the interest of hardy flowers at

exhibitions if they were shown on the ground after the manner suggested. Mr. Harkness considered the reader of the paper had been unnecessarily harsh on present-day methods of staging, which, after all, had served good purposes, and were largely responsible for the growing popularity of hardy flowers. He had, however, no doubt but that some change on the lines suggested would be beneficial. Mr. Harkness suggested that something should be done to settle the question as to what is and what is not admissible in an exhibit of hardy perennials.

STIRLING HORTICULTURAL.

AUGUST 24, 25.—The annual show of this society was held on these dates in the Albert Hall, Stirling. The exhibition, although a very good one, resulted in a financial loss, owing to the unpropitious weather. This is regrettable, as a financial success would have enabled the society to celebrate its centenary next year in a befitting manner. The entries were almost 200 in excess of last year, all sections showing an increase. The opening ceremony was performed by Major Murray, of Polmaise.

Exhibits of plants were staged in large numbers, and included excellent examples of Zonal Pelargoniums, Ferns, Fuchsias, and tuberous-rooted Begonias. Messrs. H. GRAY, Park Terrace; R. McDONALD, the Elms; and D. CARMICHAEL, Langgarth, were the most successful exhibitors.

Cut flowers provided a strong competition. Dahlias, Sweet Peas, Roses, hardy annuals and border flowers were splendidly staged. Messrs. H. GRAY; C. SHAW, Boquhan; KAY, Gargnunc; G. WATSON, Kippen, winning the chief prizes for these. Mr. SHAW arranged the best dinner-table decoration.

The exhibits of fruit surpassed those at any show during the past 20 years. Mr. J. MITCHELL, Airthrey Castle, excelled in the class for four bunches of Grapes; Mr. JAS. WOOD, Dunmore, in that for the best two bunches of Black Grapes; whilst Mr. J. MITCHELL, was placed 1st for two bunches of Muscat of Alexandria. Mr. MITCHELL was also 1st in the class for a collection of indoor fruit. Mr. J. BLACKLOCK, Blairdrummond, was awarded the 1st prize for a collection of hardy fruits. Other prize-winners in the fruit classes were Messrs. H. GRAY, J. K. MESTON, and C. SHAW.

Mr. SHAW won the 1st prize offered for a collection of vegetables, and Mr. WATSON led in the class for a collection of six kinds. In the other classes, Mr. SHAW was the most successful exhibitor.

Honorary exhibits were shown by Messrs. DRUMMOND & SONS, JOHN CRAIG, M. MCORNEISH, and Miss COLQUHOUN, all of Stirling.

NATIONAL VEGETABLE.

AUGUST 30.—The second exhibition of this Society was held on Wednesday last in the Royal Horticultural Society's Hall, Westminster. Naturally, owing to an excessively dry season, the number of entries was not so extensive as in the previous year, yet, despite the long period of drought, some 500 to 600 exhibits were staged.

In the President's class for a collection of 12 kinds, the 1st prize was awarded to the Duke of Portland, Welbeck Abbey (gr. Mr. J. Gibson), who showed a splendid exhibit, Ailsa Craig Onion and Perfection Tomato being especially good; Celery, Red Intermediate Carrots, and Best of All Runner Beans were also excellent. The 2nd prize was awarded to Mr. W. FOLKES, Amptill, Bedfordshire; and the 3rd to Mr. W. J. LONDON, Heston Farm, Hounslow, for a collection which included fine Artichokes and Beet.

In the class for nine vegetables, distinct, H. T. TATHAM, Esq., Kendall Hall, Elstree (gr. Mr. W. Gaiger), was awarded the 1st prize for a splendid collection, in which Giant White Celery, Early Giant Cauliflowers, Prizetaker Leeks, Selected Ailsa Craig Onions, and Al1 Tomatoes figured prominently. The 3rd prize was won by JOHN KERR, Esq., Londwater, Rickmansworth (gr. Mr. F. Avery), whose collection contained fine Onions and Artichokes.

The prize offered by Lord Northcliffe for the best collection of six kinds of vegetables was won by R. H. COMYNS, Esq., Heath Farm

House, Watford (gr. Mr. W. Watterton), with an excellent exhibit, in which Ailsa Craig Onions and Pink Perfection Celery were prominent. 2nd, Mr. E. DEAKIN, Hay Hall, Birmingham; 3rd, Mrs. LEWIS DAVIS, Hindhead (gr. Mr. W. H. Masters).

In a class for a collection of three dishes of vegetables, distinct, the prizes being offered by R. Anderson Graham, Esq., and F. W. Harvey, Esq., the 1st prize was awarded to H. T. TATHAM, Esq., Elstree (gr. Mr. W. Gaiger), for a splendid exhibit of Seakale, Beet, Celeric, and Earliest White Kohl Rabi; 2nd, the Rev. A. TURNER, Weybridge (gr. Mr. A. Basile), with a collection in which Kohl Rabi and Seakale Beet figured prominently.

The 1st prize for nine Tomatoes was awarded to Mr. W. HUDSON, Leicester, who showed splendid fruits of Conqueror, 2nd, E. G. MOCATTA, Esq., Woburn Place, Addlestone (gr. Mr. T. Stevenson). 3rd, C. NEWINGTON, Esq., The Holmes, Regent's Park (gr. Mr. T. Abbott). In the class for six dishes of Tomatoes, some splendid and numerous exhibits were forthcoming, as might be expected in this hot season. The 1st prize was won by the Duke of PORTLAND (gr. Mr. J. Gibson), with exquisite fruits. The varieties were Best of All, Al1 Princess of Wales, Eclipse, Perfection, and Polegate. The 2nd prize was awarded to Mr. W. HUDSON, Leicester; and the 3rd to Mr. R. STANARD, Panshanger, Hertford.

The 1st prize offered by George Munro, Esq., Covent Garden, for the best three Tomato plants in pots was won by Mr. T. ABBOTT, Regent's Park; 2nd, Mr. S. MORTIMER, Farnham.

The 1st prize for six dishes of Peas, distinct, offered by the proprietors of *Country Life* and *The Garden* was awarded to the Duke of PORTLAND (gr. Mr. J. Gibson) for an admirable collection embracing the varieties Superlative, Alderman, Centenary, Duke of Albany, Peerless, and Gladstone; the 2nd prize in this class was won by R. H. COMYNS, Esq., Watford (gr. Mr. W. Waterton).

The class for six dishes of Potatoes brought extensive entries of excellent tubers, the prizes being offered by Messrs. Clay and Son. The 1st prize was won by the Rev. A. TURNER. The collection contained the varieties Up-to-Date, Windsor Castle, President, Factor, Progress, and Sensation. The 2nd prize was awarded to Mrs. AUSTEN, Horsmonden (gr. Mr. A. Woodgate), with The Scot, Chieftain, Table Talk, British Queen, Triumph, and The Favourite; 3rd, Viscount GOSCHEN, Hawkhurst (gr. Mr. J. Gilmour).

Exhibits in the class for six dishes of vegetables, distinct, the prizes in which were offered by the Chairman, Mr. Alex. Dean, were limited; the 1st prize was won by Mr. J. CHILD, Milford, Mr. E. SPOONER, Harniton, being placed 2nd, and Mr. Peacock, Surbodon Hill, 3rd.

SEEDSMEN'S CLASSES.

MESSRS. BARR & SONS, Covent Garden, offered prizes in certain classes; in that for six heads of Celery, the 1st prize winner was H. T. TATHAM, Esq.; Improved Snowdrop Potato was best shown by Viscount GOSCHEN, Hawkhurst (gr. Mr. J. Gilmour), whilst Mrs. AUSTEN, Horsmonden (gr. Mr. A. Woodgate), excelled in the class for six Carrots.

MESSRS. CLIBRANS, Altrincham, offered prizes for three heads of Clibran's Pink Celery, the stalks not to be cut; the 1st prize was won by the Rt. Hon. Lord CURZON, Basingstoke (gr. Mr. F. West); and the 2nd by Mr. W. HUMPHREYS, Elstree.

MESSRS. W. CUTBUSH & SON's class was for 25 dishes of vegetables, in not fewer than 12 kinds nor more than two varieties of a kind. A splendid collection was staged by the Hon. VICARY GIBBS, Elstree (gr. Mr. E. Beckett). The special features of the exhibit were Barnet Hero and Ailsa Craig Onions, Eclipse and Model Cucumbers, Prizetaker Leek, and Celery.

MESSRS. DICKSON & ROBINSON'S CLASSES.—The 1st prize offered by Messrs. Dickson & Robinson, Manchester, for two bunches of Money-maker Tomato was won by C. NEWINGTON, Esq., Regent's Park (gr. Mr. T. Abbott), and the 2nd by Mrs. BERNARD, Bridgewater (gr. Mr. W. Cox). In the class for six Onions, the 1st prize was won by the Rt. Hon. Lord CURZON, Basingstoke (gr. Mr. F. West), with a splendid exhibit of very large bulbs; 2nd, A. GALLIALLS, Esq., Slough (gr. Mr. E. Johnson); 3rd, JOHN

KERR, Esq., Rickmansworth (gr. Mr. T. Avery). In the competition for six Leeks, the 1st prize was won by Mr. S. BARKER, Worktop.

A fine show of Carrots was seen in the class for six roots. The 1st prize was awarded to Mr. W. T. JEEVES, Holbeach, the 2nd to the Rt. Hon. Lord CURZON, and the 3rd to Mr. T. KING, Chippenham. The Celery class was even, although limited in entries; the 1st prize was won by Rt. Hon. Lord CURZON; 2nd, JOHN KEER, Esq., Rickmansworth (gr. Mr. T. Avery); 3rd, Mr. S. BARKER, Worktop. Exhibits of Beets were below the usual standard; the 1st prize in the class for six Beets was won by JOHN KEER, Esq., Rickmansworth (gr. Mr. T. Avery); 2nd, R. H. COMYNS, Esq., Watford (gr. Mr. W. Waterton); 3rd, Mr. W. COLEMAN, Birmingham; 4th by Mrs. BERNARD, of Bridgewater. Runner Beans were of average quality; the best dish of 24 pods was shown by Mr. W. COLEMAN, Birmingham.

MESSRS. DOBBIE & Co.'s CLASSES.—This firm also offered prizes in several classes. The class for six Leeks of the variety Dobbie's International Prize brought forward a large entry, comprising some splendidly-grown specimens. The 1st prize was won by Mr. R. STUART, Lauder, Berwick; Mr. J. E. ELLISON, Haydon Bridge, being placed 2nd; and Mr. R. H. THOMPSON, Little Haywood, Staffs., 3rd.

ROBERT SYDENHAM LIMITED CLASSES.—A moderate entry was made in Classes 43 to 54, in which Robert Sydenham Limited offered the prizes. The Rev. A. TURNER, Weybridge, showed the best two dishes of Potatoes; 2nd Mr. J. WHITE, Bampton, Oxford; 3rd, E. G. MOCATTA, Esq., Addlestone. The best Celery was shown by the Hon. VICARY GIBBS, Elstree; Mr. J. WHITE, Bampton, being placed 2nd; Mr. E. DEAKIN, Birmingham, and Mr. J. WHITE, Bampton, were placed 1st and 2nd respectively in the class for eight Turnips, while for Parsnips the Rev. A. TURNER, Weybridge, was placed 1st. Mr. E. DEAKIN 2nd, and Mr. JAS. WHITE 3rd. For six Carrots, the 1st prize was awarded to the Hon. VICARY GIBBS, Mr. E. DEAKIN being placed 2nd, and Mr. J. WHITE 3rd. The best six roots of Long Beet were shown by the Rev. A. TURNER.

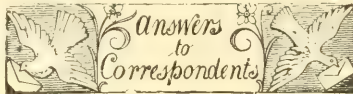
MESSRS. ROBERT VEITCH & SON'S CLASS.—This firm offered prizes for a collection of six kinds of vegetables. The entries numbered two, and in both exhibits Onions and Potatoes were good. Mrs. BERNARD, Bridgewater, was placed 1st.

MESSRS. G. MASSEY & SONS offered prizes for two dishes of Potatoes, Mr. DENISON being placed 1st; Mr. T. KING, Chippenham, 2nd; and Sir MONTAGUE TURNER, Romford, 3rd.

MESSRS. WOOD & SON'S CLASSES.—Mr. VON AARTMAN, Horsham, won the 1st prize in the class for four dishes of Tomatoes, the Hon. VICARY GIBBS being placed 2nd, and the Rt. Hon. T. F. HALSEY, Hemel Hempstead, 3rd. For four dishes of Potatoes, Mrs. H. DENISON was 1st, E. G. MOCATTA, Esq., 2nd, and Sir MONTAGUE TURNER, Romford, 3rd. Rt. Hon. T. F. HALSEY won the 1st prize in the class for six Onions. The best three varieties of Celery were shown by the Hon. A. HARTMAN, the Hon. VICARY GIBBS being awarded the 2nd, and Col. COX, Uxbridge, the 3rd prizes.

NON-COMPETITIVE EXHIBITS.

These were not numerous, but what was wanting in quantity was amply compensated in quality. Messrs. SUTTON & SONS, Reading, arranged a splendid and varied group, comprising all vegetables in season. (Gold Medal.) Messrs. BARR & SONS, Covent Garden, showed a miscellaneous stand of vegetables; all kinds were displayed in an excellent condition, and the arrangement was pleasing. (Gold Medal.) Messrs. DICKSON & ROBINSON, Manchester, showed Melon Manchester, a variety of fine flavour. Mr. R. HOLMES, Tuckswood, staged a new yellow Tomato, for which a Cultural Commendation was awarded. Messrs. DOBBIE & Co., Edinburgh, exhibited a grand collection of Potatoes in baskets. (Gold Medal.) Messrs. CARTER, PAGE & Co., London Wall, showed Tomatoes in variety, also Dahlias. (Silver Medal.) Messrs. SPOONER & SONS, Hounslow, showed a group of hardy fruit, principally Apples. Mr. S. MORTIMER, Rowlledge, Farnham, staged Cucumbers of the varieties Unrivalled and Cynosure. (Silver Medal.)



A GARDENER'S NOTICE: W. C. C. A notice to terminate an engagement given at 5 o'clock in the evening is quite in order, as the notice may be given at any time in the day. With regard to the length of notice in your case, it has been judicially decided that a head gardener is entitled to one month's notice, but there is no recorded decision that this would apply to a single-handed gardener. The length of notice, in the absence of a special agreement between the parties, depends on the custom of the locality, as to which you should make inquiries.

BEGONIA SEEDLING: H. B. The flower was withered when it reached us. Send a flowering shoot packed in damp moss, in, preferably, a tin box.

BEGONIAS DISEASED: H. M., Lindfield. The trouble is due to eelworm, which is present in large numbers in the leaves. The pest may be destroyed by pouring two drops of liquid carbon-bisulphide on the drainage materials through the hole at the bottom of the pot. Great care must be exercised in the use of this substance, as it is highly inflammable.

BOOKS: Orchid. *The Manual of Orchidaceous Plants* (James Veitch & Sons, Ltd.) is not out of print, for we are informed that there are copies still in the possession of the firm. This being the case, your copy will certainly not be worth more than the original price, but it is possible that you may succeed in getting something nearly equivalent to that figure.

BOWLING GREEN: R. H. Plantains should be removed by means of a small trowel or knife. Fill in any holes made in the turf with fine soil and sow suitable Grass seeds. It will be advisable to do the work thoroughly when the season for playing is finished. Mark out the turf in small areas, and remove every Plantain from each patch before proceeding to the next.

CUCUMBERS: H. B. The plants are attacked by eelworm. See reply on "Begonias" to H. M., Lindfield.

FRUITERER'S BUSINESS: W. B. S. It is impossible for us to say which of the towns you mention is the best for opening a fruiterer's business. They are all large places, and no doubt include districts where you would be able to make the venture a success, provided you possess the necessary business ability. With regard to outlay, this will depend entirely upon circumstances, the kind of business you propose to establish, and the thoroughfare which you may select. The profits will depend largely upon the care in management and the class of business; you will have to reckon for a considerable waste in some of the more perishable produce.

GARDENER'S WAGES DURING SICKNESS: H. W. A servant is entitled to his wages when incapacitated from work owing to a temporary illness, but not if the illness be permanent. It is open to either the master or the servant to give proper notice to determine the contract of service, whether the servant is at the time incapacitated or not. In your case, as you are engaged by the month, the proper notice is one month.

GLOXINIAS UNHEALTHY: Isolated. No disease is present in the leaves of the Gloxinias; their appearance strongly suggests the presence of eelworm at the root.

GRAPES "SHANKED": M. S. Your Grapes are not shanked, but affected by a fungus, Botrytis cinerea, which only proves injurious when an excess of moisture is present in the atmosphere. Ventilate the house freely in the early morning.

LIME AND GARDEN PLANTS: H. A. M. Most plants are benefited by a moderate quantity of lime in the soil, with the exception of members of the Ericaceae, including Rhododendrons, Heaths, Kalmias, Andromedas, and other so-called American plants; also a few others, including Lupinus, Picea excelsa, and some members of Cucurbitaceae.

MARKET WEIGHTS AND MEASURES: Anxious. The approximate weight of a bushel of Apples is 40 lbs. French Beans are usually marketed in peck and "strike" baskets, these having the same capacity, although of different shape. A peck of Beans weighs 12 lbs.; a tally of Cabbages numbers 60 heads and the same number constitutes a tally of Marrows. A "flat" of Cucumbers, which is the name given to the basket in which Cucumbers are marketed, holds from 2 to 3½ dozen fruits, according to the size of the latter.

NAMES OF FRUITS: Lawrence. Cox's Emperor.—J. S. W. S. Summer Strawberry.—Correspondent. (No letter found.) Small red-skinned Apple, Red Astrachan.—R. Jeal. Castle Major.—B. & Sons.—Black Diamond.—R. Morley. Small's Admirable.—S. C. S. Red Astrachan.

NAMES OF PLANTS: H. A. 1, Zephyranthes candida; 2, Astilbe rivularis; 3, Helianthus latiflorus; 4, Silphium perfoliatum; 5, Veronica speciosa; 6, Inula racemosa.—J. B. Bruce. Hibiscus syriacus.—Jno. C. Gould. Martynia proboscidea.—W. O. W. 1, Lysimachia punctata; 2, Poterium Sanquiborba; 3, Linaria repens alba; 4, Tunica Saxifraga; 5, Aster ptarmicoides; 6, Campanula Stansfieldi; 7, Hypericum Moserianum; 8, Dianthus armerius var.; 9, Prunella grandiflora.—By George. 1, Probably Magnolia acuminata; 2, probably Ribes sp., cannot name positively without flowers.—H. Bicknell. Begonia F. W. Farant.—F. C. Nicotiana glauca.—R. O. 1, Oncidium stramineum; 2, Ada aurantiaca; 3, Stelis ophioglossoides; 4, Epidendrum virens; 5, E. floribundum; 6, Brassia bicolor.—H. T. 1, Pteris argyræa; 2, Adiantum tenerum; 3, A. formosum; 4, Pteris tremula; 5, P. hastata.—W. R. P. Bignonia radicans.

ORCHIDS FOR TEXAS: H. R. S. The district around Galveston, Texas, would be suitable for growing a number of Mexican, Guatemalan and other Orchids of the Andean ranges of South America, provided their resting season is arranged concurrently with the period when light frosts are experienced at night and early morning. All Orchids require a tolerably warm temperature and a moist atmosphere during their season of active growth. If these conditions are provided, there should be little trouble in keeping them healthy through the resting season, provided they are kept somewhat dry at the roots. If you grow them, as you suggest, on logs suspended from the trees or fastened to the branches of the trees, the latter would afford shelter, but the plants must be attended to as carefully as they would be when grown in a plant-house. If a glasshouse were available, the plants could be removed to the house to complete their growths, if this were not already finished before winter, and returned to the trees in the open air when mature.

PEACH TREE SHEDDING ITS LEAVES: S. C. S. True "Peach yellow" is a disease not known in Europe. No cure is known for this disease. The spots on the Greenage are the result of insect punctures when the fruit was quite young. Send examples of the leaves for investigation.

PLANTS CAUSING SKIN IRRITATION: G. C. A list of plants which produce skin irritation, and, in some cases, eczema, was published in the issue for August 8, 1908, p. 110.

PRUNING SHRUBS: J. D. C. The removal of dead wood is beneficial in the case of shrubs as in other plants. If dead and diseased shoots are allowed to remain they may encourage the spread of diseases or pests to other parts of the plant. The removal of dead branches will also afford more room for the healthy shoots. If a diseased shoot is cut back into healthy wood dormant buds often develop and send out new branches to furnish the vacant space.

Communications Received.—F. A. D., Codicote "P. n."—W. B. A. W. D., H. P. F., Z., G. H. O., L., J. G. W. B., R. H. T., A. B. C., A. Cross, R. E. H., W. A. W. F. B. G. T. W., Ripon.—W. A. O., Ceras, R. V. A. SONS, A. M. New Barnet.—F. W. T. W. C., Ravenscourt Park.—F. C., W. H. W., W. E. B., A. C. B., G. C., Leeds.—F. L., Turner's Hill, C. T., R. P. H., P. L., de V., Paris.—J. H. A., J. B., S., R. B., Geneva.—C. H. H., W. B. H., W. P., Reigate.—B. C., Tonson.—Puzzled.—T. A. W., R. F., H. C., Geneva.—F. W. C.—A Reader.—C. T. D.—S. P.

THE Gardeners' Chronicle

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THE MARKET FRUIT GARDEN.

AUGUST began with a very moderate fall of rain; but after the first day of the month no further relief to the drought occurred until the 20th, when the downfall, although greater than for any single day at my station since April 1, was less than half an inch. A little more rain fell on the 21st and 22nd, but making only 0.62 inch for the three days, and bringing the August register up to no more than 0.83 inch for the month. The precipitation was useful in saving certain garden crops from destruction, but was of very little use for fruit trees, and not enough to save from death hundreds of young Black Currant bushes raised from cuttings. My total for four months is only 3.72 inches. The chief benefit of the temporary break in the drought was a moderation of the temperature. Apparently, too, the rain drowned many of the wasps, as they have certainly been less numerous since it fell.

THE FRUIT-GROWER'S PREDICAMENT.

A combination of circumstances in the second and third weeks of August placed the grower of fruit in one of the most awkward fixes that he has ever experienced. Apples were dropping profusely from trees of many varieties, and being devoured to a wholesale extent by wasps, so that gathering before the usual time seemed expedient. But comparatively little of the fruit could be marketed, as

London and markets further north were barred by the refusal of southern railway companies to take consignments, or by the impossibility of obtaining empties, long before the railway men left their work. Consequently, most southern growers too distant from London to send produce by road were dependent upon local markets for its disposal, and these quickly became glutted in consequence of consignments being sent to them from many producers who had never supplied them before, their own usual markets being closed to them. At the same time the intense heat caused Apples stored in barns or fruit-rooms to shrivel or rot badly, while ripe Plums were destroyed on the trees. The glut of fruit—Apples and Plums alike—which followed the reopening of traffic, brought prices down to low rates, from which there is no sign of recovery at the time of writing. Tons of excellent cooking Apples, well graded as firsts, have made no more than 3s. a bushel, and many have been sold at 2s. 6d., with commission and rail carriage to come off, while Victoria Plums, unless large, have fallen to 2s. 9d., and in extreme cases to 1s. per half-bushel. It is doubtful whether there will be much recovery in prices before early and mid-season Apples and all but the latest Plums have been marketed, as it is always difficult to get trade out of a bad depression.

A SEASON OF DISAPPOINTMENTS.

Probably there never was a season in which brilliant prospects for profitable returns to fruit-growers were more emphatically disappointed than they have been this year. So far as the crops are concerned, this has been fully noticed on a previous occasion; but the misfortunes mentioned in the preceding paragraph have come as a climax of disappointment. Apparently early and mid-season Apples and mid-season Plums have turned out better crops than they were at one time expected to be; but, if it had not been for the hurried picking induced by the effect of drought and the wasp plague, the extreme heat of the weather, and the strikes, the markets would not have been so badly glutted as they were in the last 10 days of August.

EARLY AND MID-SEASON APPLES.

So far as culinary Apples are concerned, evidence for some years past has led me to the conclusion that too many Apple trees of early and mid-season varieties have been planted in this country. The earliest, if marketed as soon as they can be, usually make fair prices, because it is only in the early districts that they are ready for market. But as soon as what may be termed the second-earlies are ready, the supply is commonly greater than the demand, which is not very brisk until Plums are finished. Then the great supplies of mid-season Apples, together with a quantity of windfalls from later sorts, usually keep prices low. The case is made all the worse by the practice of many growers who market varieties before the proper time. For example, Warner's King, an October Apple, was in the

market by the middle of August. The position is all the more striking this season, on account of the fact that early and mid-season varieties, dessert and culinary alike, have given by far the best crops. In my own orchard, Beauty of Bath, Mr. Gladstone, Irish Peach, Lady Sudeley, Early Julyan, Domino, Lord Grosvenor, Golden Spire, and Queen have borne well, and Royal Jubilee and Warner's King fairly well; while such late sorts as Lane's Prince Albert, Bramley's Seedling, and Newton Wonder are not up to their average standard of fruitfulness. Reports indicate that the case is the same in many parts of the country.

REFRIGERATION NEEDED.

There is no doubt that it would pay every extensive grower of Apples to have a properly-constructed fruit-house, and probably it would be profitable to furnish it with apparatus for cooling the temperature during the late part of the summer and the early portion of the autumn. This, unless in the case of a man pressed for money, would obviate the necessity of rushing second-early and mid-season Apples into glutted markets in seasons like the present, when fruit must be picked, and cannot be kept well in barns or granaries. Even without artificial refrigeration, the general possession of proper fruit-houses would render advantageous the planting of late Apples almost exclusively, with the object of keeping the fruit until Christmas, or later.

A CURIOUS COINCIDENCE.

Insufficient knowledge as to the circumstances affecting the setting of fruit renders the coincidence of the same varieties of Apples bearing well and others poorly in widely-separated parts of the country a source of wonder. In a great number of reports, Cox's Orange Pippin is stated to be bearing a full crop, and Bramley's Seedling a thin one. No explanation as to the character of the weather prevailing at the time of blossoming applies, because that time is not the same in the late and the early districts.

DEVELOPMENT GRANTS AND FRUIT GROWING.

The Development Commissioners have agreed to provide the Board of Agriculture with about £50,000 per annum for the promotion of research in agriculture, including horticulture. It has been arranged that grants shall be made for research in plant physiology, plant pathology and mycology, plant breeding, fruit growing (including the practical treatment of plant diseases), plant nutrition and soil problems, animal nutrition, animal breeding, animal pathology, dairying, agricultural zoology, and the economics of agriculture. Here we have eleven separate subjects or groups of subjects, and the average amount of funds for each is £4,545 per annum. No doubt, the separate grants will vary considerably, some subjects being in much more urgent need of research than others. Properly interpreted, all the headings of subjects but those

relating to animals and dairying cover horticulture, including fruit-growing; but it will be impossible to tell before definite details of research have been made known whether or not horticulture will receive its fair share of attention. As one who was formerly a corn and stock farmer, and then and ever since intimately connected with public agricultural affairs, I say that I know of no other branch of agriculture so urgently in need of research as fruit growing. The mere treatment of plant diseases, named in connection with fruit growing, is only one of the problems calling for research. Plant pathology and mycology and agricultural zoology in relation to fruit trees and plants are in urgent need of investigation—far more so than in relation to ordinary farm crops, not only because fungus and insect attacks are much more destructive to fruit crops than to ordinary farm crops, but also because very much less is known about the enemies of the fruit orchard than about those which prey upon farm crops.

THE COLOURING OF FRUIT.

The experience of the present season confirms the theory to the effect that rain is needed in addition to sunshine, to promote the full colouring of fruit. I have never seen Czar and Victoria Plums, or Apples generally, develop colour more slowly than they have done during the long days of uninterrupted sunshine which have been so exceptionally frequent this season. *A Southern Grower.*

THE ROSARY.

CULTURAL NOTES FOR SEPTEMBER.

CERTAIN of the plants are now sufficiently ripened to be lifted for potting, but the work must be done carefully, and the roots watered first. I do not advise lifting for ordinary planting yet. If the specimens are potted carefully, stood in a shady position, and syringed frequently, they will make roots during the next two months. Select plants that are at least semi-ripe. Those worked upon the Manetti stock are generally the best for the purpose, as such plants ripen sooner than those on the briar. Rose leaves that have been affected by red-rust disease should be raked up and burned at once in order to destroy the winter spores. No fallen Rose leaves should be permitted to remain in glasshouses for the same reason. If a few pot plants are brought under cover early trim off all the fully matured leaves, otherwise insect pests and diseases will increase rapidly when the main batch of plants is housed. It is time to afford Roses grafted during last winter and early spring their final shift, but do not shift them unless the pots are filled with roots. After potting, it is well to stand them in a deep pit or frame, where they may be protected from rains in autumn, it being essential that the soil shall not become too wet late in the year. Where rains have beaten down the soil, the ground should be loosened by the hoe as soon as possible. Not only will this allow future showers to percolate freely through the soil, but it will conserve the moisture already there, and will also check the growth of seedling weeds. The order for new plants should be placed with the nurseryman as soon as possible, and before the best plants and choicest varieties are sold. Look over any notes taken of Roses at flower shows and other gardens during the summer, but before ordering any unknown variety make certain that it has a robust habit and other good characteristics. The work in the Rose garden during September varies very little from that of August, especially now that most of the plants belong to the Tea and Hybrid Tea sections, and are worked upon the later-growing, dwarf, briar stocks. *Practice.*

TREE FERNS IN THE OPEN.

TREE Ferns are generally considered to be ornamental plants well fitted only for the embellishment of great conservatories and glass-houses; it is seldom realized that it is quite possible in this country to grow them permanently in the open air. A correspondent wrote a few years ago: "If a sheltered spot can be found in the garden, the *Dicksonias* may be risked outside during July, August, and the early half of September." Happily, there are localities in the British Isles where tree Ferns may not only be "risked outside" for 2½ months of the year, but may be planted permanently in the open gardens. No other class of plants can compare with these noble Ferns in the tropical character of their lace-like crown of fronds, spreading a feathery canopy aloft in shadowy circles, and visitors from colder districts can scarcely be brought to believe that

home for tree Ferns has been found on Sir Arthur Pendarves Vivian's estate at Bosahan, on the southern bank of Helford River, a few miles distant from Falmouth. Here a deep and narrow tree-emboweredcombe winds downwards from the higher ground to the water's edge. On either side of the path stand the tall, brown stems, crowned with the green filigree of arching fronds, spreading around in shadowy stillness, enjoying the absolute shelter from winds provided by the thickly-growing trees that clothe the steep sides of the little valley. Even when the waves form "white horses" in the neighbouring channel, scarce a leaf stirs in the recesses of this sequestered retreat, and the memorable blizzard of March, 1891, which caused such damage to vegetation in the south-western counties, caused the Ferns but little harm, although the majority had then been planted only one year. In all, there are about 30 tree Ferns in the dell,



FIG. 85.—*DICKSONIA ANTARCTICA* GROWING IN THE OPEN AT BOSAHAN, CORNWALL.

they form as permanent a feature in the landscape as the surrounding Oaks, Elms, and Firs that provide the Ferns with the necessary shade and shelter. Such a picture as they present when growing in the open is, naturally, only to be seen under the genial atmospheric conditions that prevail along the southern coasts of Devon and Cornwall, in the Isles of Scilly and in certain sheltered spots in the South of Ireland. Shelter is a most important consideration for these Ferns when grown in the open, and is best provided by trees. Sometimes they may be met with growing on closely-shaven lawns, in quarries and sometimes in deep cuttings prepared for their reception. In such cases, however beautiful they may be as individuals, they impress the mind with being exotic and not indigenous growth, for in their surroundings the work of the hand of man is clearly noticeable. On certain rare occasions, however, they may be seen amid such environment that they appear to have grown from spores where they stand. Such an ideal

most of which are of large dimensions, one particularly—the stately specimen shown in fig. 85. This plant stands in a somewhat isolated position, is 12 feet in height, with a frond circumference of over 50 feet, and has a stem more than 1 foot in diameter. A situation such as I have described is admirably fitted for the culture of tree Ferns in the open, since it provides the requisite shelter, shade and moisture. *Dicksonia antarctica* is, it is believed, the only tree Fern planted at Bosahan, and it is, indeed, the hardest, as well as the handsomest and best suited for planting in the open in this country. The Ferns have been planted rather more than 20 years, and are in the best of health, none having failed. *Dicksonia squarrosa* is also sometimes planted out, and *Cyathea dealbata* and *C. medullaris* are occasionally to be seen, but they are far more tender than *Dicksonia antarctica*. All the finest specimens of tree Ferns in Devonshire and Cornwall are *Dicksonia antarctica*. *Wyndham Fitzherbert.*

Fig. 86.—THE GRAFT HYBRID, *CRATÆGO-MESPILUS ASNIERESII*
AND ITS COMPONENT PLANTS.



H. van der Vort, *sculp.*

1, the graft hybrid; 2, *Cratægea monogyna*; 3, *Mespilus germanica*; 1a, 2a, 3a, sections through the superficial tissues of the fruits of the three plants; 1b, fruit of *Cratægo-mespilus Asnieresii*.

GRAFT HYBRIDS.

(Concluded from page 163.)

THE results obtained by Winkler, since repeated and extended to other species of *Solanum* by Heuer, conclusively established the fact that intermediate hybrid-like types may result from the vegetative union of two races in a graft. The clue to the nature of these intermediate forms came from the results of Prof. E. Baur's work on *Pelargonium zonale*.^(*)

Baur found that a race of this species with pure white leaves remained perfectly constant, and that its offspring from self-fertilisation were

that if the growing point is situated in a green part of the mosaic, the adult plant becomes green; if in a white part, the plant is white, and must be grafted on to a green stock, if it is to be kept alive. If, however, the growing point is so situated at the boundary between a white and green region that it consists partly of white, partly of green tissue, the resulting plant will consist of green and white parts united side by side. Such plants are chimæras of green and white components exactly analogous to the chimæras of Tomato and Nightshade which Winkler obtained as a result of grafting. Since

green tissue. Baur's observations show that when leaves are produced from a part of the stem in which this arrangement of the tissues obtains, the leaves have white margins (var. *albo-marginata* of *Pelargonium zonale*). Further, the shoots developed in the axils of such leaves, themselves produce again white-margined leaves.

The white-margined plant is, in fact, a chimæra, but a chimæra in which the boundary between the two components is not radial or anticlinal (as it is in the sectorial chimæras) but parallel with the surface or periclinal.

Evidently, periclinal chimæras may be of different types according to the relative positions occupied by the two kinds of tissue and the number of cell-layers derived from each. Their structure is brought out clearly enough by Baur's striking description of the case in which the epidermis alone is derived from the white tissue: a periclinal chimæra of this kind is, so to speak, a green plant enclosed in the epidermis of a white plant. In other cases the position of the green and white tissues is reversed; in others again two peripheral cell-layers are of the same kind, and no doubt time will provide examples of other possible combinations.

The results of Winkler, which established the fact of graft-hybridism, and those of Baur, which gave the key to its explanation, were attained simultaneously. In commenting upon Winkler's description of his first intermediate type (*S. tubigenense*), Baur (†) suggested the possibility that this plant might be a periclinal chimæra, pointing out that its characters were just such as might be expected of a periclinal chimæra with *S. Lycopersicum* external and *S. nigrum* internal.

Events have shown beyond doubt that Baur's suggestion holds good, not only for *S. tubigenense*, but for many other so-called graft-hybrids. Winkler has shown by cytological methods that four of his five intermediate types are periclinal chimæras. The anatomical study of *Cytisus Adami* and the *Cratægo-mespilus* hybrids indicates that they, too, are of the same nature, while Daniel's observations, made before such things as periclinal chimæras were heard of, show sufficiently clearly that his Pear-Quince hybrid is a periclinal chimæra with the tissue of the Quince external.

It is now some years since Macfarlane pointed out how closely *Cytisus Adami* resembles the pure *Cytisus purpureus* in the structure of the epidermis, while its internal structure is like that of *Laburnum vulgare*. Macfarlane speaks of the "hybrid portion" as "wrapped round, so to speak, by an epidermis of *C. purpureus*"; but, lacking the clue since provided by Baur, he did not realise the import of his observations. Further anatomical and historical examination of *C. Adami* by Baur and Buder, confirming Macfarlane's observations, indicates that, so far as one can judge from anatomical evidence, *C. Adami* is *Laburnum vulgare* clothed in an epidermis of *C. purpureus*. In complete agreement with this is the fact that the seedlings which Hildebrand obtained from *Cytisus Adami* proved to be pure *Laburnum*.

In the same way, Baur has shown that *Cratægo-mespilus Asnieresii* (see fig. 87) is a periclinal chimæra, of which the epidermis is that of the Medlar, the internal tissue that of *Cratægus* (*Oxyacantha monogyna*). In *C.-m. Dardari* the two outermost layers are *Mespilus*. *C.-m. Asnieresii* and its parents are illustrated in fig. 86,



[It is *Cratægo-mespilus* Asnieresii.]

FIG. 87.—*CRATÆGO-MESPIUS ASNIERESII* IN FLOWER, ROYAL GARDENS, Kew.

again white-leaved. But when this white race was crossed reciprocally with a pure green leaved race, the resulting seedlings showed a mosaic arrangement of green and white parts. The individual seedlings differed among themselves, ranging from white with a few green splashes to green with only minute areas of white. As these seedlings grow, the character of the adult plant is seen to depend upon the distribution of the two components of the mosaic in the region occupied by the growing point. So

the ground plan of such a plant would show the two kinds of tissue arranged as sectors of a circle, Baur distinguished them as "sectorial chimæras."

If the stem of a green and white sectorial chimæra be examined, it will be found that the boundary between the two components is often radial. Occasionally, however, the boundary departs from the strictly radial course and follows such a line that one or more layers of, say, white tissue overlie the more deeply seated

* *Zeitschrift f. Induktive Abstamm.-u. Vererbungslehre*, I, 880, 1909.

† By permission of the Controller of His Majesty's Stationery Office.

† *Zeitschrift f. Induktive Abstamm.-u. Vererbungslehre*, I, p. 401, 1909.

which is reproduced by kind permission of the author and Messrs. Borntraeger von Baur's *Vererbangeschichte*. In the fruit of the White Thorn, the outer three or four layers of the flesh contain coloured sap; these cells are bounded by a single-layered epidermis. In the Medlar the flesh is without colour, and the epidermis gives rise to a well-marked periderm or cork. The section through the graft-hybrid shows that the flesh is typically that of *Crataegus*, but it is surrounded by the cork-layers of the Medlar.

Of the two species of *Solanum* with which Winkler's experiments were made, the Tomato has an epidermis covered with stiff hairs, which are quite wanting in the Nightshade. It is, therefore, an easy matter to observe that, as far as the epidermis goes, certain of the intermediate types resemble the one parent, others the other. But, more than this, the fortunate circumstance that the Nightshade has three times as many chromosomes as the Tomato (the numbers for the somatic nuclei are, respectively, 72 and 24), renders it possible to analyse their chimæras with such precision that the distribution of the two components can be ascertained almost from cell to cell.

Hypothetically, two species united in a graft might give rise to a number of periclinal chimæras differing from one another in the number of the peripheral cell-layers which are derived from the one species. The four types of *Solanum* which Winkler has found to be periclinal chimæras represent the four forms which result when either one or two of the peripheral layers may be derived from either graft-symbiont. Thus, *Solanum tubigenum* consists internally of *S. nigrum*, but its epidermis is *S. lycopersicum*; in the second type the two kinds of tissue occupy the reverse positions; in the third and fourth types the two outermost layers are, respectively, *S. nigrum* and *S. lycopersicum*.

It may be noticed here that the cytological determinations are supported by the results obtained by breeding from these chimæras, some of which set fertile seed in some quantity. The germ cells are formed from the sub-epidermal layer; chimæras in which one of the species is represented in the epidermis alone should, therefore, produce offspring of the species whose tissues are internal; but chimæras in which the two outermost layers are derived from one species should produce offspring of that species. Three of the chimæras give results in complete accord with this expectation; the remaining one, which has an epidermis of *S. nigrum* surrounding internal tissue of *S. lycopersicum*, has not yet produced any offspring.

There remains another type, called by Winkler *Solanum Darwinianum*, the precise constitution of which is not yet ascertained. Winkler finds that the germ cells of this type have 24 chromosomes; it would appear, therefore, that the sub-epidermal layer at least, in which the germ cells have their origin, must consist of cells with 48 chromosomes, a number which represents the mean between the corresponding numbers for the two pure species (72 and 24).

This case seems to afford some support for an hypothesis which, at an earlier time and in the absence of any plausible alternative, met with some measure of acceptance. The hypothesis sought to explain the origin of graft-hybrids as due to fusions between the vegetative cells of the plants united in the graft, such fusions giving rise to cells of a hybrid nature, from which the new growth was developed. It is no longer surprising that the cytological observations of Strasburger and Noll on *Cytisus Adami*, the *Crataegus-mespilus* hybrids, and the *Bizzarria Oranges*, gave no positive support to this hypothesis, but, as Winkler points out, his investigations into the cytology of *S. Darwinianum* suggest that the sub-epidermal layer of this type, if no other tissues, may be the product of cell fusions.

The result of further investigation into the origin of *S. Darwinianum* will, therefore, be

awaited with the greatest interest, for it provides the only clear suggestion yet obtained that grafting may be followed by cell fusions, with the consequent production of shoots to which the name "graft-hybrid" is more strictly applicable than it is to chimæras, which essentially consist of cells of pure, though of different, lineage.

The spontaneous development of reversionary shoots, which is so striking a feature of the forms now known to be periclinal chimæras, must apparently be attributed to irregularities in the divisions of the meristematic layers. The frequency with which wounding is followed by the development of reversionary shoots, or of chimæras of one kind or another, would appear to be a natural consequence of the structure of the periclinal chimæra; for the death of certain cells and the active growth to which neighbouring cells are stimulated, seem to provide just such conditions as are likely to lead to the arrangement of the two kinds of cells in a new pattern in the new adventitious growths.

Strasburger has suggested that what he terms "hyper-chimæras" may occur, in addition to sectorial and periclinal chimæras. These are conceived to be chimæras in which the cells of the two kinds are more intimately intermingled, so that no great masses of tissue are derived exclusively from one species, as is the case in sectorial and periclinal chimæras. Baur has pointed out, however, that, in the branching of a hyper-chimæra, the two kinds of cells would, sooner or later, almost inevitably get sorted out, so that, at the best, it would be an unstable form.

For the rest, it is obvious that chimæras of whatever kind will be most likely to be produced in shoots which originate actually upon the line of junction between the two graft-symbionts, for it is here alone that circumstances favour the building-up of a single growing point from cells of two kinds. The likelihood of obtaining chimæras depends, therefore, upon the readiness with which the plant forms adventitious shoots in the desired position. Winkler's successful results were achieved in a genus which possesses this power in a marked degree. On the other side, the repeated failures in the genera to which the classical examples belong is accounted for by the rarity with which these genera produce adventitious shoots. That they should ever have produced chimæras seems to have been due to some fortuitous combination of circumstances, which it has not been found possible to imitate.

R. P. Gregory.

ORCHID NOTES AND GLEANINGS.

ARACHNANTHE LOWII.

A MAGNIFICENT plant of this beautiful Orchid, which is often known in gardens as *Vanda Lowii*, is blooming in the collection of the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester. The plant has developed 13 long, drooping spikes, with an aggregate of 368 flowers, forming a cascade of richly-coloured blossoms, the spikes being from 6 to 8 feet in length. Owing, probably, to the great heat of this summer the flowers have developed very bright colours, the contrast of the deep reddish-chocolate of the flowers along the racemes being very striking with the bright yellow of the basal blooms, of which each of the racemes have two, whereas in former years they have borne three and sometimes four.

The plant has two stems, each about 6 feet in height, together bearing seven younger growths from the base. These Eastern Orchids require very careful cultivation, and the Rev. Mr. Fletcher is to be congratulated on his success with them. In the house containing the *Arachnanthe* are fine, healthy plants of the rare *Vanda Dearei* in flower, *V. Sanderiana* with fine spikes, *Arachnanthe Rohaniana*, and other rare species.



PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

BULBS FOR POT CULTURE.—It is now time to order the general stock of spring-flowering bulbs. I prefer to place the order not later than the first week in September, as delivery may then be expected by the middle of that month. In the case of *Hyacinths* it must be remembered that the largest bulbs do not necessarily produce the finest flower-spikes; in most instances, a medium-sized, solid, heavy bulb is the best, and it is none the worse for having a rough appearance. If bulbs are needed for exhibition purposes the nurseryman should be advised, as he will then select them specially for the purpose; they are, in some instances, given special culture, and are also oftentimes one year older than ordinary bulbs. The remarks, pertaining to size and weight and solidity, apply equally to all bulbs grown in pots. It is scarcely necessary for me to give a list of varieties suitable for pot culture, but if early forcing is practised, then early sorts must be selected. Of *Hyacinths* I have found the pale Rose variety *Baron Van Tuyl* most reliable for forcing, also the white varieties *Baroness Van Tuyl* and *General Vetter*; or if a double-white variety is preferred, *Latour d'Auvergne*. Of *Tulips*, those of the *Duc Van Thol* type force well, but the variety *Vermilion Brilliant* is almost as early flowering. Amongst the varieties of *Polyanthus* *Narcissus Bazelman Major*, is one of the very finest for the purpose. Prepare the potting soil in advance, selecting, if possible, a sandy loam; if this is not available use road scrapings or silver sand freely in the compost, and add some well-decomposed leaf-soil or manure from a spent Mushroom-bed. It is better to err on the small side in selecting the pots rather than to use pots that are too large; do not allow too much space for drainage. After potting, stand the pots under a north wall on a good bed of ashes, placing a light covering, say a three-inch layer of the same material over them. If possible never use ashes from a household ashbin, as poisonous substances are often deposited therein. I remember a case some years ago of fine *Hyacinth* bulbs refusing to grow, and this could not be traced to any other cause than contamination of the ashes.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., West-on-Bright, Gloucestershire.

MASEDELLIA.—In this interesting genus there are many charming species and hybrids, some of them very distinct, whilst such sorts as *M. ignea*, *M. Veitchii*, *M. Harlyana*, *M. Lindeni*, *M. Davisii*, and *M. polysticta* furnish colours that make a brilliant display when in flower. In their cultivation, the great essential is to provide protection from cold, drought, and excessive light. The roots need a sweet, open compost, and the foliage requires to be kept scrupulously clean. If a house or compartment is not given up entirely to the cultivation of these plants, suitable quarters are usually to be found for them in the cool house, arranging them with the *Odontoglossums*, and giving them the same treatment. Any plants requiring fresh rooting materials may receive attention about the present time. The compost should consist of *Osmunda* fibre two parts, *Sphagnum*-moss one part, and partly-decayed Oak leaves one part, adding plenty of coarse, silver sand. If the old material is in a decaying state and sour, it is best to shake the whole of it from the roots, cutting away any of the latter that are dead. Repot the specimens, taking care of the roots that are still alive. Any specimens that have become bare in the centre should be broken up, and the divided portions placed in pots just large enough to accommodate them. In the case of healthy plants that only require top-dressing, these should have the surface material carefully picked out and replaced with new, while root-bound plants should be shifted on

with as little root disturbance as possible. Pots, properly drained, are the best receptacles for the species already mentioned, while the many dwarf-habited species are suitable for basket or pan culture, as they thrive most satisfactorily when suspended near the roof-glass. The material should be pressed moderately firm about the roots and base of the plants, which should be kept a little below the rim of the pot, neatly surfacing the compost with a thin layer of clean, chopped Sphagnum-moss. During the period of most active growth, *Masdevallias* enjoy an abundance of moisture, both at the roots and in the atmosphere, and even in winter the plants must not be allowed to remain dry for a long time, although, perhaps, there is even a greater danger of giving them too much water. Newly-potted plants will require extra care in watering for some time to come, especially those having only a few roots, and these should be afforded more shade than others that are fully established.

THE CHIMERA SECTION.—Members of this fascinating group of *Masdevallia* should receive attention if any plants are in need of fresh rooting material. These plants should be grown in shallow, teak-wood baskets in preference to pots or pans, and, as the scapes frequently take a downward direction, no flat potsherd should be used for drainage. The basket should be lined with Sphagnum-moss, and a similar rooting medium employed to that advised above. The baskets should be suspended from the roof rafters, and as the plants are found in lower altitudes than most *Masdevallias*, they require a somewhat higher temperature, more especially in winter. From October to March they should occupy a house in which the atmospheric temperature does not fall below 50°. During the rest of the year they may be grown in company with others of the genus, their treatment in all other respects being similar. This section requires much care to keep the plants in good order, and they are subject to the attacks of red thrip and scale, which soon disfigure the foliage, and, if neglected, ruin the plants. It is, therefore, necessary to examine them frequently to prevent the intrusion of these pests, by washing the plants whereas the first trace of them is seen.

FRUITS UNDER GLASS.

By E. B. BAKER, Gardener to the Hon. Viscount Ashmun House, Hertfordshire.

STRAWBERRIES FOR FORCING.—In many places Strawberry plants intended for forcing are backward this season, for, owing to the drought, it was difficult to obtain suitable runners. They should be assisted as much as possible and kept free from weeds, runners, and decayed leaves. Sometimes the foliage assumes a yellow colour, due to ripening, and such leaves must not be regarded as useless, but should be allowed to remain. Allow the plants plenty of room by placing the pots well apart, and, when the latter are filled with roots, apply liquid manure in a diluted state. Soot water is also beneficial and has good effects when syringed overhead. If mildew appears on the foliage, dust the leaves with flowers of sulphur, selecting black sulphur for preference.

PINEAPPLES.—The season has been especially suitable for Pines, and the plants have made good growth. Specimens that need larger pots should be attended to without delay. Suckers may be detached and potted, and winter-fruited plants may be afforded occasional applications of manure water. Keep the border spaces in the house well damped, maintaining a minimum temperature of 70°. Admit a little fresh air through the top ventilators as early in the morning as it is possible to do so with safety. This will cause any moisture that may have condensed on the fruits to disappear. Pines that are ripening, but are not needed for the dessert at the present, should be removed to a cooler house.

VINES.—Pot vines should be removed without delay to a sheltered position out-of-doors, so that the wood may become thoroughly matured. Gradually diminish the amount of water at the roots, but do not allow the soil to become dust-dry at any time. Young vines planted in borders often continue to grow vigorous late in the season, and it is a matter of some difficulty to get the rods properly matured. A free circulation of

air, whenever the weather is favourable, and a little heat circulated in the water pipes in dull and damp weather and at night time will favour the ripening of the shoots. Although damping down must still be practised in warm weather, less moisture will be required in the borders and on places directly under the growths. Syringe the foliage during bright weather. The bunches on late vines will in most cases be almost perfectly ripened. When the berries are well finished, remove the lateral growths where these are too thick, and especially if they are crowded near to the roof glass. Examine the bunches of Grapes on mid-season vines, and remove any berries that show signs of decay.

THE FLOWER GARDEN.

By R. P. B. THORNTON, Gardener to the Earl of Harrington, K.T., Tynningham, East Lothian.

THE MIXED BORDER.—Some people appreciate the mixed border as a repository of flowers for picking, rather than a border capable of presenting changing pictures of floral beauty. Although it is not desirable to gather all the flowers from the border, yet it is sometimes imperative to make use of some of them. If care is employed, some of the blossoms may be removed here and there without them being missed. The perennial *Asters* or *Michaelmas Daisies* may usually be cut freely. Some, such as *corymbosus*, *vimineus*, *pinnatifidus*, *fulgens*, *Dianna*, and *linosyris*, are already in flower, and these will be followed by *Amellus* in variety, *W. Bowman*, *amethystinus*, *Frank Rayner*, *Climax*, *Photograph*, *Tradescantia*, and *ericoides*, which represent a desirable selection. Other subjects in flower include *Lilium tigrinum* (Tiger Lily), *Montbretias* of all kinds, *Rudbeckia speciosa*, *Anemone japonica*, *Anthemis tinctoria* *Kelwayi*, *Solidago canadensis*, *S. Shortii*, *Bocconia microphylla*, *Lobelia cardinalis* *hybrida*, *Chrysanthemum uliginosum*, *Gladiolus primulinus*, *G. brenchleyensis*, *B. Lemoinei* in variety, *G. Childsi*, and other hybrids; *Helenium grandifolium*, *Gypsophila Stevenii*, *G. Rokejkei*, *G. paniculata* fl. pl., *Hemerocallis aurantiaca* *major*, *Knifophias*, *Pentstemons*, *Phloxes*, *Clematises*, *Eupatorium ageratoides*, *Statice latifolia*, and seedling *Delphiniums*. There is a wealth of coloured foliage in the garden, which, with hips of Scotch and Alpine Roses, and seed-vessels of other plants, afford splendid materials for indoor decoration. Such annuals as *Impatiens prostratum* and *Nasturtiums*, *China Asters*, *Larkspurs*, *Clarkia elegans*, tall *Antirrhinums*, *Statice sinuata*, *S. spicata* and *S. Suworowii*, *Xeranthemum annuum*, annual *Chrysanthemums* and *Marigolds* are all useful.

CARNATIONS.—The drought has retarded the free rooting of Carnation layers, but if the latter were prepared at the date I advised, they should be ready to transplant into their flowering quarters in the course of the coming week. Early planting results in the plants becoming thoroughly established before the winter arrives, and a much greater quantity of flowers the following summer. If the ground has been manured for a previous crop, no manure should be applied now; but if manure is considered necessary, it must be thoroughly rotted and well mixed with the soil. Where the ground is naturally wet in winter, the beds should be raised, and the surface made slightly convex. Deep planting is to be deprecated, but the ground can hardly be made too firm, provided it is not wet. Where ground game and birds are numerous, means must be taken to exclude them. A few surplus plants of winter-flowering Carnations were planted out in May, and they are now coming into flower; they will provide a pleasing addition in the flower-garden in autumn. The varieties will need careful selecting for planting out-of-doors. Mrs. F. Burnett promises to occupy a foremost place, not only for the colour of its flowers, but also for the neat habit of the plant.

GLADIOLUS.—Hybrids of *Gladiolus primulinus* planted on trial have been very satisfactory, the plants having a very dainty appearance. Seeds of all kinds of *Gladioli* should be saved: the seed vessels should be watched and gathered before the seeds are scattered. Seedling *Gladioli* grow freely, and, as a rule, throw stronger spikes than old corms.

THE KITCHEN GARDEN.

By JOHN DUNN, Horticultural Lecturer, Royal Gardens, Kew.

WINTER LETTUCES.—If seeds of Lettuce were sown a month ago, or so, the young plants should be ready for planting out, for it is necessary to do this before the severe draught. Sufficient room must be allowed for the air to circulate freely amongst the plants and to allow the Dutch hoe being used to stir the soil in the autumn. Choose a sheltered position for planting, where protection may be afforded against frosts occurring during November. A few degrees of frost early in November will sometimes spoil the crop, especially if the plants are wet, and fully developed. The next plantation should be made from plants raised a fortnight later, and these should be planted in cold pits, raising them to within 18 inches of the lights, which should not be placed in position until the late autumn, when they may be used to protect the plants from heavy rains or frost. A sowing of hardy varieties of Lettuce may be made now on a south border to furnish plants for wintering in the open and for planting out in the spring. Brown Cos, Hardy White Cos, Stanstead Park, and Maximus are suitable varieties for this purpose.

ENDIVE.—Continue to plant Batavian Endive, allowing a distance of 15 inches between the plants each way. Choose, if possible, a border which is sheltered from north and east winds, as the plants will afford supplies through November and December if some protection is afforded them during inclement weather. Moisture is the greatest enemy to Winter Salad plants after they have attained their full size, therefore, if lights are available, these may be placed over the plants during wet weather, but air must be admitted freely at all times. As soon as the plants are large enough, some of them should have the foliage tied up when perfectly dry for blanching. The heads should be ready for use in a fortnight after the tying is effected.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

STRAWBERRIES.—The drought has delayed all planting operations, but it is now imperative to prepare the new beds of Strawberries in order that the plants may become established before winter. Strawberries may be planted at almost any time when the runners are ready, but the present is generally considered the most favourable, especially if the weather be showery. The ground for Strawberries should be trenched to a depth of 18 in. or more, and receive a good dressing of suitable manure. The roots of the Strawberry penetrate to a considerable depth, and it is almost impossible to make the soil too rich or lasting for them. Unless the ground is in a thoroughly moist condition when the plants are inserted, copious supplies of water must be given, until the roots have re-established themselves. It is advisable to have strong plants in reserve to make good any losses in the spring.

PEACHES AND NECTARINES.—The fruits of Peaches and Nectarines are fast ripening, and the trees require a constant attention to keep them in a healthy condition. Syringing should not be practised until the fruit is gathered, but afterwards frequent overhead syringings will become necessary in order to keep the trees clean and healthy. Under dry conditions red spider and other insect pests increase and cause serious damage to the foliage. Wasps are still very troublesome, and every means should be adopted to destroy them.

VINES.—Fruiting vines growing upon walls, arches or pergolas should have the lateral growths thinned out to expose the permanent wood and fruit to all the air and light possible. Superfluous branches should also be removed, and those required for next season trained in position by tying or nailing. In favourable situations the earlier varieties are already ripening. The bunches should have the benefit of the sun as much as possible, and if wasps, flies, or birds attack them the bunches should be protected with wasp-proof netting, or enclosed in tiffany or gauze bags, which may be purchased from the sundriesmen. The present season promises to be one of the best on record for outdoor Grapes.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, SEPTEMBER 11—United Hort. Benefit & Prov. Soc. Com. meet.
TUESDAY, SEPTEMBER 12—Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. Thomas Smith, on "The Small Holdings Movement.")
WEDNESDAY, SEPTEMBER 13—Roy. Caledonian Hort. Soc. Sh. in Waverley Market, Edinburgh (2 days).—Tuckson & Robinson's Vegetable Competitions at Manchester.
THURSDAY, SEPTEMBER 14—Nat. Rose Soc. Autumn Sh. at R.H.S. Hall, Westminster. Soc. Nationale d'Hort. de France (Paris) Exh.
SATURDAY, SEPTEMBER 16—Faisley Florist Soc. Chrys. Sh. Elstree and Boreham Wood Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—57.5°.

ACTUAL TEMPERATURES.—
 LONDON.—Wednesday, September 6 (6 P.M.): Max. 85°; Min. 66°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, September 7 (10 A.M.): Bar. 30.3"; Temp. 72°; 11 cakes—Sunshine.

PROVINCES.—Wednesday, September 6: Max. 80° Hertfordshire; Min. 61° Ireland N.

SALES FOR THE ENSUING WEEK.

MONDAY.—Twenty-sixth Annual Sale of Pot Plants, at the Nurseries, Chingford, by order of Messrs. H. B. May and Sons, by Protheroe and Morris, at 11.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY.—Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.

MONDAY, WEDNESDAY, AND THURSDAY.—Dutch Bulbs and Lilies, at Stevens's Auction Rooms, 38, King Street, Covent Garden, W.C., at 12.30.

TUESDAY.—Great Annual Trade Sale of Winter-blooming Heaths, &c., at Burnt Ash Road Nurseries, Lee, S.E., by order of Messrs. B. Maller and Sons, by Protheroe and Morris, at 11.

WEDNESDAY.—Great Annual Sale of Winter-flowering and Other Plants, at the Nurseries, South Woodford, by order of Mr. John Frater, by Protheroe and Morris, at 11.
 200 Cases Liliun Harrisii, Japanese Lilies, also Miscellaneous Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 2.

A consignment of Palms, Bay Trees, Aspidistras, &c., from Belgium, at Stevens's Auction Rooms, 38, King Street, Covent Garden, W.C., at 1.30.

THURSDAY.—Thirtieth Annual Sale of Winter-blooming Heaths and Ferns, at Longlands Nursery, Sidcup, by order of Messrs. H. Evans and Sons, by Protheroe and Morris.

The Development Grant for Agricultural Research.

The scheme of the Board of Agriculture for the endowment of agricultural research has secured the approval of the Development Commissioners and the sanction of the Treasury. The official scheme, concerning which details were published in these pages last week, contemplates the expenditure of a considerable sum of money up to the maximum of £50,000 per annum.

The principles which the Board proposes to adopt in the expenditure of this research grant deserve the attention of all interested in agriculture and horticulture. Broadly speaking, these principles are the systematisation of research and the co-ordination of research-work in the several branches of agricultural science.

Hitherto, the scientific investigation of agricultural problems has been in large measure casual. Here and there men of ability have taken up this or that question and have tackled it single-handed, sometimes with conspicuous success. Such successes as have been achieved have been due in the main to the practical rather than to the scientific agriculturists, though honourable exceptions must be made in favour of the continuous investigations

of the scientific staff of the Rothamsted experiment station, and also with respect to the younger institution, the Agricultural Department of the University of Cambridge. That the scientific agriculturist has not yet made many deep and abiding impressions on agricultural practice is not a matter for surprise. Agriculture is not only the premier but also the oldest industry. All sorts and conditions of men are engaged in this art, and the ablest of these men have not been slow to discover ways in which the practice of agriculture may be ameliorated. The scientific expert, on the other hand, has had fewer opportunities, largely the result of insufficient financial support and the pressure of multifarious duties; only too often he is expected to devote a considerable number of hours to the laborious work of teaching, to go round the country as a sort of travelling farmers' friend, offering advice which is not always wanted and may occasionally be inaccurate, and in the remainder of his time it is fatuously expected that this expert shall make discoveries which shall revolutionise agriculture. To expect any such thing is sheer nonsense. What was to be expected was what has happened, namely, that such research as has been carried to a successful issue has been, with certain exceptions, both casual and sporadic. The scheme of the Board of Agriculture represents an attempt to reform this state of affairs.

In the first place, money is available. In the second place, and yet more important, men are to be found if it is possible to find them. At the present time the number of investigators who are occupying themselves with agricultural problems is but small. The harvest—to be reaped—truly is plentiful, but the labourers are few. To remedy this fatal defect the scheme of the Board proposes the establishment of a certain number of scholarships for the express purpose of training students to the work of agricultural research. Each scholarship is to be of the value of £150 and to be tenable for three years at one of a number of approved institutions. There can be no doubt that this system of scholarships is an essential condition for the success of the attempt to develop agricultural research. At the risk of hurting susceptibilities, it is necessary to be explicit at this important stage in the history of agriculture and to say that the body of men necessary for carrying out the scheme of research contemplated by the Board does not exist. The men have to be discovered and trained before the scheme as a whole can be developed.

We think that the Board are to be congratulated in thus recognising the need for the provision of recruits to the very small standing army of agricultural researchers, and we believe that they will find themselves spending more money on this object than they at present contemplate or than people impatient for immediate results will think necessary. In the meantime, while the scholarship holders are in training, grants are to be made to those institutions which are in a position to undertake agricultural investigations. Experience

shows that institutions are able, under the stimulus of prospective grants, to improve any amount of such capacity. The Board will, therefore, safeguard themselves and the public money in the following manner. Agricultural science is divided for the purposes of the scheme into a number of sections, namely, plant physiology, agricultural zoology, animal and plant nutrition, and soil problems, genetics (animal and plant-breeding), pathology (diseases of animals and plants), dairying, fruit-growing, and the economics of agriculture.

Each of these subjects is to be "farmed out" to one or more institutions in which are workers who have specialised in the subject. The advantages of this method of giving out research piece-work are great, but there are also grave disadvantages attaching to it. The advantages are that the even development of the several branches of agriculture is encouraged and that certain of these branches are not neglected for studies which are at the moment more in fashion. Groups of workers will be encouraged by this system to co-operate toward the solution of those "border-line" problems of which agriculture presents so many, problems which stand on the no-man's land which bounds such sciences as botany and zoology. The disadvantages are that the scheme prevents over-lapping, and over-lapping in research is an excellent thing. It tends, moreover, to make each agricultural research institution too much of the nature of a technical institute for the investigation of one department of agriculture. We shall have soil institutes, genetics institutes, dairy institutes, and so on. It is true that freedom is thriftless, and, therefore, not apt to find favour with Boards or Treasuries; but it is equally true that without freedom the best kind of research is likely to remain undone. The weak point of the scheme would appear to be that it makes no provision for one or more agricultural universities—places where agriculture is studied from a research point of view in all its branches and where soil men meet with dairy men and genetics is cheek by jowl with pathology.

Nevertheless, the scheme will, we think, command the general approval and support of all friends of agriculture and horticulture. It represents an attempt to provide what is greatly needed—a body of highly-trained and efficient experts, who will devote themselves both to the investigation of agricultural problems and to the dissemination of knowledge of value to the farming community. It leaves the work of mere demonstration on one side and divides research into two sections: one general or universal, the other—and no less important—local. If successful, then in 10 years' time we shall have in this country a group of men who are not only discovering the best methods of growing plants and rearing animals, but who are able to go to this field or that orchard and tell the grower who wants help what kind of permanent pasture, what combination of manures, and what remedial measures against disease he is bound to adopt if he is to secure the best results from his labours.



Photograph by E. J. Wallis.

A NEW CHINESE WALNUT.
JUGLANS CATHAYENSIS; SHOWING FOLIAGE AND FRUITS.

SUPPLEMENTARY ILLUSTRATION.—*Juglans cathayensis* (Dode)* belongs to the same group as *J. cordiformis* and *J. mandshurica*, these latter species being fairly well-known trees in this country. A tree in Messrs. JAMES VEITCH & SONS' Nursery at Coombe Wood, raised from seeds obtained from Mr. Omei, Western China, in 1905, and sent to Messrs. VEITCH by Mr. E. H. WILSON, has recently fruited, thus supplying the materials for our illustrations. Mr. WILSON gives us the following particulars:—*J. cathayensis* forms a deciduous tree, growing sometimes 70 feet high. The shoots are covered in their first year with very viscid, gland-tipped hairs, and these are also found on the peduncle, fruits, and leaf-rachis. The leaves are pinnate, multijugate, the largest 2 feet to 2½ feet or more in length. The leaflets are ovate-oblong, 3 inches to 6 inches long, 1½ inch to 3 inches wide, and obliquely rounded or subcordate at their bases. They are acuminate; the margins being finely serrated. There are short, scattered hairs on the upper surface of the foliage, which is a paler colour beneath, and furnished with a pale, stellate pubescence. In addition to this stellate pubescence, the midrib is densely set with viscid glandular hairs. The male catkins are cylindrical, pendulous, 9 inches to 15 inches long. The fruits are produced in clusters of six to ten, towards the end of the spike, which is about 6 inches to 9 inches long. They are egg-shaped, 1½ inch to 1¾ inch long, pointed and very viscid. The nuts are similarly shaped, the rind being from ¼ inch to 16 inch thick. The nuts are ovoid (see fig. 88), sharply acuminate, six to eight angled with irregularly-serrated, almost spinescent, angles and wrinkles, six to eight lacune on inner side of the endocarp. The plant does not exactly agree with Monsieur DODE's description, but from my knowledge of the tree in a wild state, I believe them to be identical. M. DODE describes the nuts of *J. cathayensis* as being "larger than those of *J. mandshurica* and *J. stenocarpa*,† with six to eight rather distinct angles, more or less acute at summit, furnished with numerous chambers (lacune), greyish outside and roughish, but with obtuse wrinkles." The nuts I collected differ in having usually a very acuminate summit and sharp almost spinescent angles and wrinkles. In old nuts that have been handled somewhat, these sharp edges get worn almost away, as is seen in fig. 88. M. DODE founded another species (*J. Draconis*‡ on HENRY'S No. 10 433 B from Yunnan. He describes the nuts of this species as being "not larger than *J. cathayensis*, eight angled, and often very acuminate at the summit, but with only four lacune." HENRY'S specimen in Kew Herbarium, bearing the above number, shows a fairly smooth nut, having six lacune, and foliage identical with that of *J. cathayensis*. These lacune are formed by the undulating growth of the endocarp, and vary in number according to size of fruit and conditions in which the fruit has grown. *J. cathayensis* is the common wild Walnut of Central and Western and South-western China. At low altitudes it forms a small, bushy tree 15 feet to 30 feet high, flowering and fruiting when 8 feet to 10 feet high. In the woods and forests it occasionally makes a large tree 40 feet to 70 feet high, and 5 feet to 8 feet in girth. The leaves on young plants are often a yard long, rivaling those of *Ailantus* and *Cedrela*. The male catkins are borne on shoots of the past and current seasons' growths, and are often more than a foot in length. The female

flowers are sub-terminal, racemose, and have pink coloured pistils; the peduncle elongates after fertilisation has taken place. The bark is a light shade of grey and smooth, becoming rough and dark-coloured in old trees. The seed is sweet and pleasant flavoured, but the endocarp is so hard and the seed so difficult of extraction that it has but little edible value. *J. cathayensis* is undoubtedly closely allied to *J. stenocarpa*, Max., and is probably nothing more than a southern form of that species. M. DODE refers some of MAXIMOWICZ'S Amur specimens to *J. cathayensis*, but it seems strange for this plant to extend so far to the north and



FIG. 88.—FRUIT OF *JUGLANS CATHAYENSIS* WITH PORTION OF THE PERICARP REMOVED, AND SECTIONS SHOWING THE RIDGES AND LACUNE.

there exist alongside its close ally *J. stenocarpa*. Until we have definite proof to the contrary, it seems advisable to retain MAXIMOWICZ'S name of *stenocarpa* for the Amur plant, and restrict the name of *cathayensis* to the wild Walnut of China proper. *J. cathayensis*, according to M. DODE, is in cultivation with M. VILMORIN at Les Barres, from seeds received from PÈRE FARGES in 1899. *J. Draconis*, is, on the same authority, said to be cultivated by Messrs. SPATH, Berlin.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society will be held on Tuesday, September 12, in the Vincent Square Hall, Westminster. At the three o'clock meeting in the lecture-room, an address on "The Small Holdings Movement" will be delivered by Mr. T. SMITH.

NATIONAL ROSE SOCIETY.—The autumn Rose show of this Society will be held in the Royal Horticultural Hall, Vincent Square, Westminster, on Thursday, the 14th inst. Mr. EDWARD MAXLEY, the hon. secretary, informs us that, as the past month has, at all events in the southern half of England, being so dry and otherwise unfavourable for the production of blooms in the early autumn, several new and suitable classes, both for nurserymen and amateurs, have been added to the schedule.

"THE ORCHID WORLD."—The number of the *Orchid World* for September contains a description of Mr. Thwaites' Orchid collection at Streatham Hill, and illustrations of some of the more notable hybrids raised from crosses made under his supervision, including *Sophrone-Cattleya Thwaitesii*, *Odontoglossum Rolfeae* Thwaites' variety, *Cattleya Maggie Raphael* alba, and *Odontodia Thwaitesii*. This issue being number twelve, it marks the conclusion of the first volume, and an index for this volume is included in the text.

BLACK CURRANT RUST.—This rust is frequently met with in fruit plantations towards the end of the summer. The fungus which causes it is called *Cronartium ribicola*, and it has an interesting life-history. Like *Puccinia graminis*, the black rust of cereals, *Cronartium ribicola* is a heteroecious parasite, i.e., it lives on two different host plants at different stages in its life-history. In the case of *Cronartium ribicola* the two hosts are the Weymouth Pine (*Pinus strobus*) and the Black Currant. The spores produced on this Pine earlier in the year infect the leaves of the Black Currant on which the fungus forms two other kinds of spores—uredospores and teliospores. The uredospores first occur in small pustules on the under surface of the leaf, but later their place is taken by the teliospores, columns of which appear as small, brownish and hair-like projections. Unlike the teliospores of many other rust fungi, these spores germinate at once, forming other spores, which in turn infect the Weymouth Pine. I have only once seen this rust on Red Currants, and in this case the Red Currants were near Black Currants, which were badly infected with the parasite. The uredospores of this rust have the power of infecting Black Currant leaves again, but whether they are capable of retaining their vitality throughout the winter, is uncertain. The recurrence of this rust in Cambridgeshire year after year is remarkable, because the Weymouth Pine is not a common tree in the county, and the present winter has not seen a specimen of it affected with the rust.

THE RAINFALL.—In a lecture on "Rain-fall," delivered at a recent meeting of the British Association, Dr. H. R. MILL, said that the rainfall of the country was never everywhere above the average or everywhere below in any one year, and parts of the country might suffer from a deficiency of rainfall year after year, while other parts perhaps not very far away suffered equally from a great excess. In 1908 and 1909, for example, the south-west of England was extremely dry, but in 1910 the same region was extremely wet. Taken as a whole, however, the total rainfall of the country fluctuated from year to year. From 1872 to 1883 there was a great predominance of wet years; from 1889 to 1909 there was an unbroken repetition of two dry years followed by one wet, while it seemed possible, despite the drought of the present summer, that we were now entering on a spell of years among which the wet would predominate.

* *J. cathayensis*, Dode, in *Bull. Soc. Dode*, France, 1909 p. 47, fig. 44.

† *J. mandshurica* and *J. stenocarpa*, Max., in *Mel. Bot.*, viii., 630-632, fig. 1, 872.

‡ Syn. *J. Draconis*, Dode, loc. cit. p. 49, fig. 45.

THE ORIGIN OF CULTIVATED BEGONIAS.—

Among the subjects discussed at the Congress of Horticulture held in Paris in May last, one of the most interesting was that concerning the origin of cultivated Begonias. Monsieur BELLAIR, who introduced the subject, pointed out the large part hybridisation had played in the production of present-day forms. Of the hybrids which have been raised, two classes may be distinguished, those which are fertile and those which are sterile. The fertile hybrids include the tuberous-rooted section, which has been produced by crossing and re-crossing at least five wild species, *Begonias boliviensis*, *Veitchii*, *roseiflora*, *Davisii*, and *Pearcei*. Besides the tuberous-rooted Begonias, another fertile race is that known as *gracilis*, produced by crossing *Begonia semperflorens* with *B. Schmidtiana* and appearing in three coloured forms, white-flowered, rose-flowered and red-flowered. Other fertile hybrids of probably a similar origin are *Lumineux* and *Lubeca*, and perhaps *Gloire de Chatelaine*. The last-named has but a very reduced fertility. According to Monsieur BELLAIR, the two best-known reputed sterile *Begonia* hybrids are *Gloire de Lorraine* and *Patrie*, both of which claim *Begonia socotrana* as the female parent. *Gloire de Lorraine* is believed to have been obtained by crossing *B. socotrana* with *B. Dregei*; *Patrie* from *B. socotrana* and *B. Pearcei*. Not infrequently the female flowers are absent, and even when they occur they are few in number, and are said to be sterile to their own pollen. Monsieur BELLAIR pointed out that the hybrids of the tuberous-rooted section are derived from parents which do not present marked dissimilarities one from the other; whereas the species from which come such sterile Begonias as *Patrie*, differ from one another markedly and in many ways; in the shape of their leaves, in their season of flowering (*Begonia socotrana* being a winter flowering and *B. Pearcei* being a spring flowering species), and in form of their rhizomes. It is to the fundamental differences in constitution between the parents of *B. Patrie* and other hybrids of this class that M. BELLAIR attributes the sterility of hybrids. Sterility is, however, a very subtle and erratic phenomenon, as to the cause of which we have as yet little or no certain knowledge.

SOCIETY OF AMERICAN FLORISTS.—The annual convention of this society constitutes one of the most important events in the American horticultural world. The 22nd meeting was opened at Baltimore on August 15, under the presidency of Mr. GEORGE ASMUS. After the address by the president, and the transaction of formal business, the meeting was given over to the reading of papers and the consideration of suggestions put forward by the members. There was also a great horticultural display, and the usual social functions, which are inseparable from meetings of this character. The keenest discussion was centred around a proposition to change the time of the convention to March, but it was finally decided to hold the next meeting in the autumn, at Chicago. The membership of the association exceeds 1,100, and embraces most of the principal florists and nurserymen in the States. A gloom was cast over the proceedings by the sudden death, on the first day, of Mr. JOHN BIRNIE, one of the oldest members.

PUBLICATIONS RECEIVED.—*Imperial Department of Agriculture for the West Indies*: Manual Experiments with Sugar Cane in the Leeward Islands, 1909-10. (London: Dulau & Co., 37, Soho Square, W.) Price 4d.—*The Agricultural Journal of the Union of South Africa*. July, 1911. (Pretoria: The Government Printing Office.) Price 2s. per annum.—*Quarterly Journal of Forestry*. July, 1911. (London: Laughton & Co., Wellington Street.) Price 2s.

THROUGH LITTLE NAMAQUALAND WITH THE VASCULUM AND THE CAMERA.*

(Continued from p. 167.)

NORTH of Annenous, the road to Bethany Drift soon becomes involved among the mountains. Here and there they open out to give place to an undulating plain, but they are never out of sight. They attain no great height, the highest peaks hardly exceeding 4,000 feet. Their geological structure is exceedingly complex; sedimentary rocks are few; minerals of various kinds are abundant. The country as a whole is in a state of virgin wildness, and bears but slight traces of human occupation. Game abounds everywhere except in the immediate vicinity of the few native hamlets.

There can be little doubt that this region still contains a great many species unknown to science. It has hardly been touched by a botanical collector since the time of Drège, and

Meyer's account of Drège's journey and collections,§ the course of the Orange River is incorrectly laid down. Drège's well-known locality, Verleptpram, is there placed a little to the west of the junction of the Visch River with the main stream of the Orange. If this is near its true position, it lies within the area defined in the last paragraph, somewhat to the east of the centre of its northern boundary. The name Verleptpram seems to be no longer used for any location or hill in the neighbourhood; neither missionaries, police, prospectors nor natives have any knowledge of it. It was probably applied to a "farm" long since abandoned, and there is no reason to hope that it will ever be identified.

Not far from the centre of the Richtersveld, at the head of a wild ravine appropriately known as Hell's Kloof, there occurs a remarkable spring of slightly saline water.|| This falls into a very deep rock-basin hardly more than three yards



FIG. 59.—ALOE PEARSONII, SCHÖNLAND.

(In the Richtersveld near the top of Hell's Kloof.)

the 509 species of flowering plants which he obtained north of the Koussie (Buffels) River† were gathered between August and October. No part of this region is of greater promise botanically than that which lies north of a straight line drawn east and a little south from the mouth of the Orange River to the point where it intersects the river at Tc Alys Drift (long. 17° 30' E.). Except near the mouth, the tract which intervenes between this line and the Orange River‡ is a tumbled mass of mountains without roads, and only crossed here and there by a few little-known native footpaths, which very frequently assume the character of steep and irregular stairways. In the summer it is almost without available water, and even in a wet winter it may only be attempted under good guidance and with no transport heavier than a pack mule. Near the river, the hills are very barren; away from it they bear a rich array of low bushes and succulents, while in sheltered kloofs tall shrubs and a few trees (*Acacia horrida*, *Euclea Pseudebenus*) afford a fairly dense cover.

In Arrowsmith's map, which accompanies

across at the top. The supply is permanent, and the overflow irrigates the bottom of a narrow valley for some distance from the reservoir. This basin, no doubt, originally a mere fissure in the rock, is overhung by a great mass of quartzite, so situated as to shelter it completely from direct sunlight. For some distance above the water's edge the rock bears a dense and flourishing growth of Maidenhair (*Adiantum æthiopicum*), which seems strangely out of place amid the succulents and gnarled bushes which cling to the rocks above it. This appears to be the first record of the occurrence of a Maidenhair in Namaqualand.¶ It is quite impossible that it can have reached this isolated position except through natural agencies, and its presence here constitutes an interesting problem in plant distribution. Associated with it are a delicate, white-flowered plant (undetermined) and at least one species of *Chara*, while access to the pool is here and there impeded by a dense growth of Reeds (*Arundo*). On the damp ground which receives the overflow there are fine trees of *Acacia horrida* with *Tamarix articulata*, *Statice scabra* and various grasses, sedges and rushes.

§ E. H. F. Meyer, *Comm. de Pl., Afr. Austr.*, 1835.

|| About 3,000 feet s.m.

* Being some notes on the Percy Sladen Memorial Expedition to the Orange River, 1910-11. This expedition was assisted by a grant from the Royal Society.

† Drège's region III, B, which yielded 609 species of flowering plants, includes a large tract of country south of Annenous.

‡ Includes the greater part of the "Richtersveld."

¶ *Adiantum capense*, Thb., collected by Drège between Nativoot and the Orange River—*Cheilanthes capensis*, Switz. (Sim., *The Ferns of South Africa*, p. 82.) The genus is probably represented in the Khamiesveld.

Succulents, many of them with brightly-coloured foliage, are predominant among the vegetation of the surrounding hills. They include *Mesembryanthemums* (among which are the giant species referred to in the last article, and another closely allied to, if not identical with, *M. Burklyi*), *Crassulas*, *Cotyledons*, *Zygophylla*, and an *Aloe*, which Dr. Schönland has described as a new species** (see fig. 89). Like many other species, this one is gregarious. It is so thickly spread over the hill slopes (especially those with a more or less westerly aspect) that, when seen from a short distance, they appear to carry no other vegetation. It has not been found outside the Richtersveld area, within which it is extremely abundant from Numees Mine southwards to the settlement of Kuboos (some 20 miles). Its slender, erect stem, rarely more than 2½ or 3 feet high, is closely beset with drooping leaves; the reddish-bronze colour of these gives to the plant a remarkable and characteristic appearance. From its summit there arises the slender raceme, bearing flowers varying in colour from a delicate lemon yellow to a bronze-pink. It is a very striking plant, with good claims to be regarded as ornamental.

The Richtersveld Mountains are rich in *Euphorbias*, some species of which are represented by numerous individuals. The most remarkable of these is, perhaps, *E. Drègeana* (see fig. 90). It occurs in great abundance on the lower hill slopes between the Orange River and Annenous. Drège collected it not far from Annenous (Kookfontein or Steinkop, lat. 29° 15'), and again south of Silverfontein (lat. 29° 50'). Its southern limit is about latitude 30° (a little south of the Buffs River). From this point northwards it increases in importance until it attains its maximum development a little south of the Richtersveld. Beyond this it becomes less abundant. It doubtless occurs north of the Orange River, though it apparently dies out entirely south of the latitude of Luderitzbucht. It is not known from Bushmanland, but it extends to the borders of that country at Enriet, a water-hole N.E. of Steinkop. Wherever it occurs, on rocky, hill slopes or sandy levels, it is a conspicuous plant. It is taller than the great majority of its neighbours; its leafless,

grey stems are circular in section and as thick as an ordinary spade handle. They give rise at the summit to a few short, slender branches, which bear the large and somewhat conspicuous flowers. This is probably the only Namaqualand

the Richtersveld was previously obtained from undefined localities in Namaqualand by Atherston and Wyley, and was described by Sondu, from incomplete material, as *Portulacaria namaquensis* (Portulacaceæ). It is, without doubt,



FIG. 91.—A SPECIES ALLIED TO *PORTULACARIA NAMAQUENSIS*, SONDU.
"TREES" 12-15 FEET HIGH.

The photograph was taken at Aggeneys, in Bushmanland, in 1909.

Euphorbia whose economic possibilities have attracted serious attention. It yields a copious supply of latex, which is said to contain a high proportion of rubber. The rubber-yielding properties of the Namaqualand *Euphorbias* call for further investigation.

One of the most remarkable of the plants of

closely allied to *Portulacaria*, but it differs from that genus in certain important characters of the ovary and fruit. It is therefore proposed to place it in a new genus together with two other species as yet undescribed. One of these was found in 1909 on granite hills in Bushmanland, Aggeneys, Henkiesfontein, and Dabainoris (see fig. 91). In the last locality it grows on the same slopes as *Pachypodium namaquanum*.†† Like the Richtersveld species, it is a tall bush (8-15 feet), with stout stems branching in an apparently dichotomous manner. These are protected by layers of cork, which are impregnated with a substance of the nature of wax. In the Bushmanland species the wax is so inflammable that the living bark will burn energetically as it stands. The third species, one of the commonest plants on the Richtersveld Mountains, is smaller than the others; its branches are more slender, and their corky covering contains less wax; its flowers are fewer and more scattered than in the other species, but in all three their structure is remarkably similar.

These three species being generically distinct, *Portulacaria* remains monotypic. Its only species, *P. afra*, Jacq., the "Spekboom," is a characteristic Karoo plant. But the two genera are closely allied, and their distribution affords further evidence of the relationship between Namaqualand and the Karoo. The proofs of this relationship are so numerous that in 1886 the late Dr. Bolus regarded them as constituting a single botanical region. More recently he considered the Western Coast Region as distinct from the Karoo,‡‡ a conclusion which is generally adopted. Nevertheless, the high degree of affinity which exists between these two regions must not be lost sight of in the framing of a hypothesis to account for the present distribution of plants in South-west Africa. H. H. W. P.

(To be concluded.)



FIG. 90.—*EUPHORBIA DRÈGEANA*.

At all even plants of *E. Drègeana* are distinguished by their height from the *Mesembryanthemums* and other species of *Euphorbia* which constitute the bulk of the vegetation.

†† See *Gardener's Chronicle*, December 4, 1909.

‡‡ Bolus, H., *Sketch of the Flora Regions of South Africa*, 1905.

** *Bot. Beech. Musc.*, v. 1911, p. 229.

NOTES FROM LEONARDSLEE.

BIGNONIAS.—At the present time *Bignonia grandiflora* is a gorgeous sight on the walls of the mansion, and also on a high wall devoted to rare and tender plants. The plants are masses of long sprays of handsome flowers 2 feet to 3 feet long. The soil was enriched last autumn with fresh loam and bonemeal, and this, together with the tropical summer, has brought about such excellent results in flowering. The smaller and harder *B. radicans* has been in flower for nearly a month. Another *Bignonia*, of Continental origin, named *Mme. Salen*, which we consider to be a hybrid between *B. grandiflora* and *B. radicans*, is also finely in bloom. This variety is very free in blooming, the flowers being somewhat darker in colour than those of *B. grandiflora*, and in size and shape somewhat between the two species named. *Bignonia*s flower here every year, early or late according to the season, and sometimes very late if the season is damp and cold. In unfavourable summers they are not so attractive, but they are certainly worth cultivating.

MANDEVILLA SUAVEOLENS. This beautiful climber has been in profuse flower for a month past, having benefited greatly by the brilliant sunshine. Trained against a warm wall in a position where plenty of moisture may be afforded the roots, the plant makes a peculiarly handsome subject, and produces sweet-smelling flowers.

DESFONTAINEA SPINOSA.—This plant has flowered abundantly, even small plants 6 inches high, and both in the shade and full sunshine. This beautiful shrub is always admired for its scarlet and gold coloured blossoms.

MITRARIA COCCINEA has been in flower for two months, making an exceptionally showy and beautiful spectacle. Our plant is growing in a shady, well-drained bog, where it finds everything necessary for its welfare.

PHILESA BUXIFOLIA.—At Leonardslee the box-leaved *Philesia* is planted in a position under a rock, and has been blooming all through the summer. This is a choice and beautiful plant, with flowers resembling small *Lapageria* blooms.

MYRTLE.—A plant of *Myrtus* "Jennie Rutenbach" is one mass of flowers, the dark green foliage forming a beautiful setting to the pretty double-white blossoms.

TRACHELOSPERMUM JASMINOIDES.—This shrub has been a wonderful success this season, and has bloomed profusely on a wall facing south-west. The fragrance of the flowers is apparent even at a distance of 20 yards.

EUCRYPHIA PINNATIFOLIA.—This choice flowering plant was quite three weeks in advance of its usual flowering time, but the blossoms were not so good as usual owing to the hot, dry weather.

ROMNEYA COULTERI.—The Californian Poppy has been, and is still, a glorious spectacle, having enjoyed the rich sunshine. It is a beautiful flower for a hot season. This plant enjoys plenty of moisture.

DENDROMECON RIGIDUM has flowered all through the summer, and has made wonderful growth. The plant enjoys a warm position and plenty of water. All the plants I have mentioned are benefited by a spraying of clear water at night.

LAGERSTRÖMIA INDICA.—This fine flowering plant is exceptionally well bloomed this season, and is a beautiful addition to wall climbers in August. We have it planted as a shrub in the open under shelter of *Pinus sylvestris*. The large, bright spikes of flowers are very pretty, and decidedly interesting. *W. A. Cook, Leonardslee Gardens, Sussex.*

AN ABNORMAL SWEET PEA.

An abnormal flower of Sweet Pea was brought to our notice recently (see fig. 92), in which the parts are duplicated, some of them several times. The specimen has the appearance of a very large double flower with several standards and many wings. It is an abnormality which frequently occurs in Sweet Peas, and consists of splitting up of the flower into a number of flowers; this, however, is not complete but partial. There are representatives of four or five flowers, as is shown by the equivalent number of pistil, stamen, and petal groups; but these are all enclosed within a common calyx and part, at any rate, of a common corolla. The characteristic papilionaceous corolla of each of the subsidiary flowers may be distinguished, but, owing to the great crowding caused by so many flowers arising within a single calyx, the petals are considerably crushed, and some of them imperfectly



FIG. 92.—ABNORMAL FLOWER OF SWEET PEA.

developed. The condition is essentially the same as that which occurs in fasciated shoots, namely, the single organ divides at the apex by multiple forkings into a number of secondary organs.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE POTATO CROP.—I read with interest the sanguine letter by *A. D.* on p. 154, respecting this season's Potato crop, and, I regret that I am not able to echo his optimistic remarks on the subject from this westernmost part of England. I sincerely hope that in other parts of the country "the general absence of the fungus disease" may be maintained, but here at Tehidy (I cannot speak as to other parts of Cornwall) the disease has appeared with us and spread rapidly. We have had exceptionally heavy crops throughout the season; early varieties, such as *May Queen*, *Sharpe's Express*, and *Ninetyfold*, grown in the walled gardens, have been lifted without showing a trace of disease. Other Potatoes growing in another part of the garden have fared differently. Until a month ago, the haulm of these looked remarkably green and vigorous, in spite of the dry weather. Then came a thunderstorm, but not a heavy rain, and on one or two nights a light fog drifted inland from the sea, and within less than a week from that time all the foliage had dropped from the plants; in fact, the whole plots were blackened in less than 24 hours. We have now finished lifting from that part of the garden. Six varieties were grown here, and all were heavy crops. *Goldfinder* was almost free of diseased tubers, Windsor Castle produced about 15 per cent. of affected tubers, *Table Talk* and *Fidler's Eclipse* nearly 50 per cent. *White City*, which produced a wonderful crop, suffered about 40 per cent., and *Factor* about 50 per cent. We also plant rather more than an acre of ground on the downs, within a few hundred yards of the cliffs and fully exposed to the winds from the Atlantic Ocean. The plants here suffered in exactly the same way and

at the same time as those before mentioned. They are grown on a piece of ground that was broken up last year, and cropped for the first time with cereals. We had hoped for a yield of 10 tons here, but after examination in different parts of the field, it is doubtful whether we shall harvest 2 tons of clean tubers. And this in a dry season such as, I am told, no one now living remembers in Cornwall. What is the cause? Last summer was a wet one; the crops were not so heavy, but the losses from disease were insignificant. *F. J. Clark, Tehidy Gardens, Cornwall.*

MODERN CUCUMBERS.—In a trial of Cucumbers conducted by the Royal Horticultural Society at Wisley Gardens this season, I was greatly surprised by the small differences seen in most of the varieties. But amongst the very numerous sorts I did not find the old *Blue Gown* variety, with its black-spined, deeply-coloured fruits, one of the best-flavoured of Cucumbers.

Raisers nowadays seem to be most concerned with the production of varieties having smooth and rather long fruits. There were many of this type in the trial, but the plants appeared exhausted after they had produced a couple of fruits and incapable of continuing the crop. No doubt some may argue that, if the fruits had been cut earlier, other fruits would have followed. This may be true; still, there were several varieties that had four, five, and even six fruits of a moderate size fully or nearly fully developed. Such free-cropping varieties have, for the ordinary grower, the greater value. The more prolific varieties were of the *Lockie's Perfection* type, with smooth, short "heels" and of a dark-green colour. If raisers desire to obtain free-fruited varieties with fruits of a better flavour and with flesh more crisp than characterises so many modern Cucumbers, let them obtain, if it may be had, a true stock of the old *Blue Gown*, and inter-cross it with *Rochford's*, which is one of the most free-fruited and useful varieties in cultivation. *Cucumis.*

THE WASP PLAGUE.—We are grateful for what the State has done during the past few years through the Board of Agriculture in giving us valuable information by means of the leaflets on diseases and pests affecting fruit and vegetable crops, and to the County Council for their lectures, which are useful and instructive so far as they go. But could they not go further, and do something to eradicate the wasps? I make bold to say that this pest is more destructive to fruit crops than all other insects, and the greatest enemy I have to contend against in fruit culture. The wasps have eaten or destroyed half the fruit crops here this season. I have tried all the known measures to cope with them. I have destroyed many nests with cyanide of potassium and by means of jars and bottles containing sweetened beer I have trapped thousands, yet they appear to be as plentiful as ever. I should like to draw public attention to the need there is to destroy the queen wasps in the spring, and I would suggest that the Board of Agriculture and the County Council be asked to do something to encourage the destruction of this pest. *Thos. Oldham, The Gardens, Staughton Grange, Limerick.*

ADMISSION PRICES TO THE ROYAL INTERNATIONAL EXHIBITION, 1912.—As the chief horticultural journal representing the trade florists and nurserymen, also the head gardeners throughout the country, I urgently ask you to give publicity to this subject. This is an important matter to the thousands of members of the R.H.S. not by any means wealthy, who in a very large measure will be the actual producers of the exhibition. R.H.S. members should be admitted, as at the Temple Show, on production of their membership tickets. I feel sure that the R.H.S. secretary, Rev. W. Wilks, will explain matters fully, and that the committee that arranged this scheme will reconsider the same, and take all the members into their confidence, either by circular or by meeting. This should be done at once if assistance is to be expected from horticultural traders and others to make the 1912 exhibitions known all over the civilised world. It should be remembered that the object of the exhibition is, or should be, the furtherance of British horticulture, and the education of our young horticulturists, which has been lost sight of by the Royal Horticultural Society of late years. W. H. Hadden, *General Secretary of R.H.S.*, Goldthorpe Road, London.

THE FRUIT SEASON.—In our case much of the abundant bloom last spring was weak and small, and many of the fruits failed to set, although the weather at the time of blossoming was splendid. The failure is no doubt due to the unimproved condition of the wood, due to the wet and sunless summer and autumn of last year. We had good average crops of Gooseberries, Strawberries, Raspberries and Red Currants. Pears are very few, but the Apple crop is satisfactory, the trees being splendidly fruited. The variety Charles Ross is especially fine, and others that are noteworthy include Peasgood's Nonesuch, Bramley's Seedling, Annie Elizabeth, Allington Pippin, Cox's Orange Pippin, Chelmsford Wonder, Wealthy, Christmas Pearmain, Cellini, Sturmer Pippin, Mère de Menage, Lane's Prince Albert, Kentish Fillbasket and Patten's Seedling. We have plenty of Blackberries and Blackberries. *Forced Apples, Pears, Peaches, and other fruit, H. H. Hadden.*

LETTUCE HOLBORN STANDARD.—This is the finest Lettuce I have seen. The plants have withstood the hot, dry weather especially well, and produced good heads. They continued to grow steadily, making enormous hearts when all other kinds were bolting to seed. In a season which has proved a trial for all salad plants, this Lettuce furnished a plentiful supply of delicious leaves. W. J. Cook, *Resident of the Holborn Standard, H. H. Hadden.*

"MR. BRESSE" POTATO.—This is the modern way of spelling the name of this Potato, which was named after an American raiser. Turning to a list of varieties which I grew in 1875, I find the name is spelt "Bresse," and sometimes with a "z" as Breeze. The emphasis was always on the syllables equally. The first variety to which the name of Bresse was attached was imported by Messrs. Hooper & Co., of Covent Garden, who at one time were the primary agents for distributing this new to the market. It was a Prolific, a round tuber, having a tinge of nut brown on the skin. The variety now grown as Mr. "Bresse" came to us later. But the spelling of the name with two e's and one s is the same as that by which it was put into commerce, as my spelling was derived from Messrs. Hooper's list. With Bresse's Prolific I also grew in 1875 the then almost new Early Rose, Extra Early Vermont, Late Rose, Vermont Beauty, Willard's Seedling, Climax, also one of Mr. Bresse's raising, Compton's Surprise, and Gleason's Late Snowflake, and some other popular American varieties were introduced to commerce a year or two later. Of those mentioned only Early Rose seems to have survived. A. D.

LILY-OF-THE-VALLEY IN THE OPEN.—Some writers advise the planting of Convallaria majalis to be done in the autumn, but in the north, or in cold, wet soils, I found it was better to plant just as growth commenced, as then the plants grew without a check, whereas those planted to the autumn only made slow progress. The plant does not form roots until a considerable amount of top growth has been developed. I

have planted Lily-of-the-Valley even when the flowers were appearing with much better success than is obtained from autumn planting. Those I refer to were grown on a west border under Apple trees near to a north wall, where they received very little sunshine. But they did well under these conditions, and the crowns required replanting every four or five years. It was my practice to lift a portion of the bed annually, pick out the stronger roots and tie them in bundles of 25 ready for forcing in pots. The best of the crowns that remained were selected for planting out; they were placed 6 inches apart in trenches made 6 inches deep and 8 inches between the trenches, covering the roots with manure from a spent hot-bed previous to filling the trenches with soil. The surface was mulched annually with a layer, 3 or 4 inches thick, of the same material, but beyond this they received no further attention. W. P. R.

HELIANTHUS "MISS MELLISH."—Respecting the note on this plant by Mr. Brotherton in his calendar on the flower garden (see p. 168), it may interest readers to know that I have this year increased the beauty of the flowers of this Sunflower by removing all but the leading bud on each flower-stem. This leaves plenty flowers for effect, and the individual blossoms are much finer. C. Lemesle Adams, *Pendeford Hall, Walsingham.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

August 29.—Present: Mr. W. Botting Hemsley, F.R.S. (in the Chair); and Messrs. J. W. Odell, J. Fraser, W. Hales, J. O'Brien, R. Hooper Pearson and Gurney Wilson.

Wheat.—Mr. Botting Hemsley gave an example of the well-known "wheat" Carnation, which differed from the usual form, in having not only the continued repetition of the bracts, but above these, of the calyx. The first few whorls had the bracts arranged opposite to one another as usual; above these were some not so regularly arranged and occasionally connate below, while above, the leaves were in whorls of five and connate as the calyx is usually.

Adiantum.—Mr. Botting Hemsley also sent some bulbs of Habranthus pratensis received from Norwich, attacked by the grubs of the Narcissus fly, Merodon equestris. The grubs were found in the soil, and the plants were found to be very much injured. The habits to several other bulbs besides the Narcissus.

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HORTICULTURAL TRADES' ASSOCIATION.

August 30.—At the meeting of the Horticultural Trades Association of Great Britain and Ireland at Exeter, as Mr. P. C. M. Veitch, the head of the well-known Exeter firm, is president of the Association. The rendezvous was the Royal Clarence Hotel, and by Wednesday morning (August 30) some 60 members had reported themselves. The business of the day was devoted to an inspection of the leading features of the city, the party being exceedingly fortunate in being conducted over the grand Cathedral by Canon Pryke. His lucid account of the development of its leading architectural features were greatly appreciated. A luncheon, given by the President, followed, and this was attended by the Mayor and other city dignitaries, and the Archdeacon of Exeter and Canon Pryke.

The afternoon was devoted to visiting various nurseries. In those belonging to Messrs. Veitch & Son many interesting things were seen. The collection of trees and shrubs suited to the south of England, Ireland, and the west of Scotland is the most complete in Britain. In Messrs. Veitch's nursery an effort is made to produce in their own grounds everything necessary to the requirements of the nursery—they graft their own Rhododendrons, propagate Conifers, bud Roses, work vines, &c. Nerines are a speciality, but, of course, were out of bloom. A few specialities in seeds attracted considerable attention. A house of Calceolarias "Golden Glory" was just past its best. Two new varieties of Calceolarias, not yet introduced, were carefully scrutinised—one a fairly tall, pure white, the other a dwarf red. The white variety is a gem. The dwarf deep rose-coloured Petunia "Lord Curzon" was bedded out of doors, and growing under glass for seed. What must be one of the finest strains of single Asters in existence was observed; the flowers were large and the colours clear and bright. It was named elegans.

The other nurseries visited that day were those of Mr. W. Randall, where a good collection of trees and shrubs is grown, Mr. George Kerswill, and Messrs. Brown & Sons.

VISIT TO BICTON.

The second day, Thursday, was devoted to visiting Bicton, where Mr. Mayne, the gardener, conducted the party through the world-famous Pinetum. Here are to be found several Indian and Mexican species unrepresented elsewhere in Britain. Unfortunately many of the specimens are depreciating through the roots getting down into an unsuitable subsoil. Many years ago the older trees were mounded up, but nothing has recently been done in this direction. An avenue of 50 Araucarias was a striking feature. The trees were from 8 feet to 9 feet in circumference, 4 feet from the ground. They were planted in 1843. One of the 50 is hermaphrodite, the others being male and female almost alternately. Some of the most cultivated trees were found among the Cupressus, such as Glauca, columnaris, alba, and Lambertiana. Pinus insignis, Abies cephalonica and A. magnifica were also remarkable specimens. In the gardens were many fine features. Many of the trees were covered with hundreds of feet of walls, the foliage was most luxuriant, and an odd flower still remained to suggest to visitors what glory and perfume there must have been hundreds upon hundreds of flowers respond to the early summer sun. The Macartney Rose charmed everybody, likewise did a long border of Belladonna Lily with Zephyranthes candida in front, both fully open in the blazing sun. The drive to Bicton and back occupied five hours, and it afforded the party a fine opportunity of comparing Devonshire crops and scenery with those of the respective districts to which the members belonged.

The third day was spent in sailing from Exmouth to Dartmouth, and up the Dart to Totnes.

Mr. Arthur W. Paul, of Messrs. W. Paul & Son, Waltham Cross, was elected President of the Association for the coming year, and Mr. Charles E. Pearson, Lowdham, Secretary. It is the intention of the Association to entertain the foreign nurserymen and seedsmen who visit this country on the occasion of the International Show next year. A vote of thanks was given to Mr. Veitch, who had worked hard to make the visit of the Association to Devon so successful.

CARLISLE AND CUMBERLAND HORTICULTURAL.

AUGUST 30, 31.—The fourth annual show of this association was held in the Market, Carlisle, on these dates. The number of entries constituted a record, being 1,366. The various classes numbered 245. The outstanding features of the show were the displays of hardy fruits and vegetables. Apples have seldom been shown at Carlisle in a better condition, and there was keen competition in all the classes for these fruits. Exhibits of Potatoes, Beetroot, Onions, Turnips, and Leeks were exceptionally good; many of the finest specimens were staged by allotment holders. Amongst flowers the displays of Sweet Peas and early-flowering Chrysanthemums were predominant. Cut perennials and annuals were also good.

The association endeavoured to make the show an educational centre, and, for this purpose, introduced several new features. During the two days Mr. W. B. LITTLE, county horticultural lecturer, gave demonstrations in fruit bottling, and in the grafting, budding, and pruning of fruit trees, whilst Mr. J. Charlton gave a demonstration in the bedding and pruning of Roses. During the morning of the second day 1,100 of the elder children of the town and surrounding county schools visited the show, and to these special lectures were given by Mr. Little.

In the open classes the best exhibit of 18 vases of Sweet Peas, distinct, were shown by Mr. JOHN SMELLIE, Glasgow; 2nd, Mr. GEORGE BOWNNESS, Glasgow.

The best exhibit of 20 cut Rose blooms was staged by Mr. J. HODGSON, Mount Annan.

In the class for Carnations or Picotees, the 1st prize was awarded to Messrs. GEO. FAIRBAIRN & SONS, Botcherby; 2nd, Messrs. M. CAMPBELL & SONS, High Blantyre. Early-flowering Chrysanthemums were best shown by Mr. J. SMELLIE; 2nd, Mr. GEO. BOWNNESS, who excelled in the class for Cactus-flowered Dahlias, Mr. SMELLIE being placed 2nd.

Decorated dinner tables formed an attractive feature of the show. There were eight competitors, the 1st prize being awarded to Mr. A. HARWOOD, gardener, Netherby; Mr. A. KNIGHT, gardener, Brayton, being placed 2nd.

In the class open only to gentlemen's gardeners for nine vases of Sweet Peas, Mr. A. APPLETON, Farlow Hall Gardens, was awarded the 1st prize; 2nd, Mr. J. FARQUHARSON, Hayton Hall Gardens.

There was a class for 12 varieties of Sweet Peas open to all except nurserymen. The 1st prize was awarded to Mr. J. TURNER, Hutton-in-Forest; 2nd, Mr. J. HAY, Carlisle.

In the class for 12 vases, Mr. J. FLETCHER, Lanark, was placed 1st, and Mr. G. S. MOFFAT, Lockergie, 2nd, whilst for nine vases Mr. FLETCHER again excelled.

FRUIT AND VEGETABLES.

The 1st prize for a collection of six dishes was awarded to Mr. A. HARWOOD; 2nd, Mr. RYAN, gardener, Warwick Hall.

Mr. T. FIXTER, Brackenburgh Tower Gardens, showed the best two bunches of Black Grapes; 2nd, Mr. A. MACKAY, Castlesteads Gardens. The best single bunch of black Grapes was shown by Mr. J. ROBERTSON, Knells, and the best bunch of white Grapes by Mr. T. FIXTER.

A silver cup, offered for a collection of outdoor fruits, was won by Mr. W. SCOTT; 2nd, Mr. C. C. ROWLAND, Mickleton, Gloucestershire.

The best exhibit of cooking Apples, packed and graded for market, was shown by Mr. J. MILLIGAN, market gardener, Scotchby.

In the two classes for collections of vegetables, the 1st prizes were won by Mr. C. C. ROWLAND and Mr. J. SMITH respectively.

In the amateurs' classes the challenge cup offered for Sweet Peas was won by Mr. J. BRYCE HARRINGTON.

Mr. H. S. THACKERAY won the silver medal offered in the class for six vases of Sweet Peas.

Vegetables, collections of six kinds, 1st, Mr. J. SMITH; 2nd, Mr. W. SAWYERS, Carlisle; 3rd, Mr. W. JOHNSTONE, Langholm.

Mr. J. VETCH won the greenhouse offered by Mr. McLauchlin & Co., Stranraer, for the best display of cut flowers; 2nd, Mr. W. BATTIE.

NON COMPETITIVE EXHIBITS.

Messrs. LITTLE & BALLANTYNE, Carlisle, exhibited a large collection of hardy plants and

shrubs, also many choice greenhouse plants. (Large Gold Medal.)

Messrs. GEO. FAIRBAIRN & SONS, Botcherby, Carlisle, staged floral designs, also a table of Sweet Peas and another consisting chiefly of Begonias. (Large Gold Medal.)

Messrs. ED. WEBB & SONS, Stourbridge, exhibited a stand of choice fruits, flowers, and vegetables. (Gold Medal.)

Mr. W. B. LITTLE arranged a stand of educational interest, which contained a large collection of Apples and bottled fruits from the Cumberland and Westmorland County Experimental fruit plots. (Gold Medal.)

Messrs. MANSELL & HATCHER, Leeds, staged a collection of Orchids. (Gold Medal.)

Mr. JOHN MILLIGAN, Scotchby, staged a large collection of Apples, the colour and finish of many of the varieties being remarkably good. (Gold Medal.)

Messrs. E. FAIRBAIRN & SONS, Edentown, displayed a large collection of hardy border flowers, comprising chiefly choice varieties of Phlox decussata. (Gold Medal.)

Sir BENJAMIN SCOTT (gr. Mr. Accleton) exhibited well-grown Orchids. (Gold Medal.)

Messrs. CLARK BROS. & Co., Carlisle, staged a miscellaneous collection of stove and greenhouse flowering and foliage plants. (Silver-gilt Medal.)

THE CHADWICK MEMORIAL SCHOOLS exhibited specimens of fruit, flowers, and vegetables grown by the boys. (Silver-gilt Medal.)

Silver Medals were awarded to Messrs. DOBBIE & Co., Edinburgh, for Dahlias; Mr. F. G. BELL, Whiteley Bay, for Violas; Messrs. A. McLAUCHLIN & Co., Stranraer, and Messrs. J. H. REED & SON, Carlisle, for greenhouses and garden frames.

DUNDEE HORTICULTURAL.

AUGUST 31, SEPTEMBER 1, 2.—The annual floral fête of the above society was held on these dates in the Magdalene Park, Dundee. Despite the hot, dry summer, the show was an excellent one in every respect. The entries numbered 2,278, which is 169 in excess of last year. Out of the total entries, no fewer than 1,348 were from amateur artisans in the city and its immediate neighbourhood. Four large marquees were required to accommodate the exhibits. It is to be regretted that the weather was unfavourable on the opening day. A boisterous wind, increasing during the day to a severe gale, blew down the sides of two marquees, and it was feared, at one time, that the roofs would be lifted. Considerable damage was done to the exhibits on the side stages, and a magnificent display of Dahlias from Messrs. Dobbie and Co., Edinburgh, was completely destroyed. This exhibit, however, was soon replaced by fresh flowers. It is to be regretted that a more favourable site cannot be found for the show, for the present position is devoid of shelter. During the second and third days the weather was favourable, and we are glad to learn that last year's loss will be reduced. The show was noteworthy for the magnificent exhibits of fruit, Apples in particular.

The Corporation Cup, offered for six bunches of Grapes was won by Lord ROWALLAN, Kilmarcul (gr. Mr. James Dixon). A bunch of Muscat of Alexandria in this exhibit was awarded eight points out of a possible ten. The 2nd prize was awarded to Mr. JAMES BEISANT, Castle-Huntly, who showed splendid bunches of the variety Duke of Buccleuch.

The principal class in the pot-plant section was for a group of plants staged on a ground space, 15 feet by 18 feet. Cut flowers and foliage were excluded by the conditions of the schedule. Only two exhibits were staged. Mr. JAMES BEATS, Binrock, was awarded the 1st prize for a group of Codiaums, Palms, and miscellaneous flowering and foliage subjects; 2nd, Mr. JAMES BETHEL, Grange, Monifieth, with an effective group of Palms, Codiaums, Liliums, Statice, Abutilons, and Bougainvillea glabra.

Mr. J. BETHEL was placed 1st for a table, 9 feet by 5 feet, of stove and greenhouse plants, arranged for effect, Mr. GEORGE REID, Inverton, West Ferry, being placed 2nd.

Exhibits of pot plants were excellent: in the class for six stove or greenhouse plants, Mr.

JAMES KINNEAR, Fernbrae, Dundee, was awarded the 1st prize and Mr. R. W. SAUNDERS, Lismore, Broughty Ferry, the 2nd prize.

The best four exotic Ferns were shown by Mr. G. REID.

Foliage plants were a great feature; in the leading class for these subjects, Mr. J. BEATS, Mr. J. KINNEAR, and Mr. R. W. SAUNDERS won the 1st, 2nd, and 3rd prizes respectively.

Chrysanthemums in pots were shown admirably, Mr. GEORGE SCOTT and Mr. J. BEATS being 1st and 2nd respectively in both classes.

Ferns were also well shown, and Mr. W. COOK, Dunraig, Mr. G. REID, and Mr. J. BETHEL were the most successful exhibitors.

For 70 Alpines in pots, the prize-winners were: 1st, Mr. W. T. MORRISON, Dundee; 2nd, Mr. R. BOISE, Dundee; and 3rd, Mr. V. L. GRAY.

CUT FLOWERS.

The classes in this section were well contested. Mr. G. SCOTT was placed 1st, and Mr. J. BEATS 2nd for a display of cut flowers in vases.

Hardy herbaceous flowers in 12 vases made a beautiful display. Mr. JOHN S. SUMMERS led, followed by Mr. CHAS. SHAW, Kippen.

For 12 H.P. Roses in not fewer than six varieties, Mr. JOHN SIMPSON, Panmure Gardens, Carnoustie, was placed 1st, and he also won the 1st prize for a similar number of Hybrid Tea Roses.

Sweet Peas were shown in grand style. In the class for 12 varieties in vases, one variety in each vase, Mr. G. MILNE, Burnside, Montrose, was easily 1st. He had splendid blooms of Mrs. H. DICKSON, Masterpiece, Edrom Beauty, Sunproof Crimson, and Nubian, all the stems being of good length, with four flowers on each. Dr. SINCLAIR, Forfar, was placed 2nd.

In the amateur classes for cut flowers, Mr. JOHN IRELAND, Brechin; Mr. R. H. LOW, Dundee; and Mr. JOHN McLAUREN, Dundee, won the principal prizes.

Miss ANDERSON, Dundee, showed the best hand bouquet, and Mr. J. BEATS the best bouquet comprised of hardy border flowers; also the best floral wreath.

NURSERYMEN'S CLASSES.

For 24 Roses, Hybrid Perpetual or Hybrid Teas, distinct, Messrs. J. COCKER & SONS, Aberdeen, were placed 1st with grand flowers. A bloom of J. B. Clark was particularly fine, and others of Lyon Rose and Frau Karl Druschki were almost perfect; Messrs. ADAM & CRAIG-MILL, Aberdeen, and Mr. WM. FERGUSON, Dunfermline, were placed 2nd and 3rd respectively. There was only one entry in the class for 24 Tea or Noisette Roses, Mr. W. FERGUSON, Dunfermline, staging good blooms and securing the 1st prize. For six vases of Roses, Messrs. COCKER & SONS, were again placed 1st.

VEGETABLES.

There was a strong competition in the class for a collection of 12 kinds of vegetables distinct. Mr. JAMES KINNEAR, Dundee, won the 1st prize easily, his Leeks, Celery, and Onions being especially fine. Mr. W. HARPER, Bankfoot, and Mr. V. DAVIS, Stanley, were placed 2nd and 3rd respectively.

Leeks, as usual at Dundee, were shown well, and for these Mr. J. KINNEAR was easily 1st. The same exhibitor also won the 1st prize for red-skinned Onions. 2nd, Mr. JOHN LAING, Blairgowrie; and 3rd, Mr. R. STAWARD, Panshanger Gardens, Hertford.

Potatoes made a fine show of well-grown tubers. In the principal class the prizewinners were: 1st, Mr. G. H. YOUNG; 2nd, Mr. W. PRATT, Kingskettle; and 3rd, Mr. W. GOODALL, Errol.

Carrots and Turnips were also strong classes, and Mr. W. HARPER excelled in both competitions.

FRUIT.

In the fruit classes the quality exceeded anything ever seen at Dundee. For a collection of Apples, in 12 distinct varieties, three of each, grown in the open, Mr. W. GRIEVE, Hazlewood, Broughty Ferry, was placed 1st; Mr. W. BENVIE, Muric Gardens, Carse of Gowrie, 2nd, and Mr. D. FERGUSON, 3rd. There was a large number of classes for dishes of various Apples and Pears. The amateurs,

in their section, excelled themselves, and their efforts made a good comparison with the professional exhibits. Mr. D. A. MILN, Linlathen, secured 1st prizes for Pears and Nectarines. The Dundee Corporation offered a cup for the best display of eight kinds of vegetables by an amateur. It was won by Mr. ALFRED DRUMMOND, Burnside Cottage, Crieff, for a most creditable exhibit; 2nd, Mr. PETER DONALDSON, Dunning Station; and 3rd, Mr. G. H. YOUNG, Meikle.

HONORARY EXHIBITS.

Messrs. SUTTON & SONS, Reading, put up a neat exhibit of Tomatoes, Onions, vegetables and Melons, the whole being pleasingly set off with cut flowers.

Messrs. DOBBIE & Co., Edinburgh, staged a large collection of Dahlias. Most of the flowers were shown in sprays and bunches.

Messrs. JOHN FORBES, LTD., Hawick, exhibited a small collection of herbaceous cut flowers, together with Violas, Carnations, and a few trusses of Zonal Pelargoniums.

Messrs. STORRIE & STORRIE, Glencarse, filled a table with excellent Apples in variety. They also showed a few pots of their strains of Petunias, Coleus, and Celosias.

Mr. D. McCORMISHER, Crieff, exhibited a collection of cut flowers including spikes of Gladiolus.

Messrs. W. P. LAIRD & SINCLAIR, LTD., Dundee, put up a large stand, in the centre of which there was an artificial pool of water. Rustic arches were tastefully displayed with Palms, Ferns, Spireas, Liliiums and foliage plants. This firm also showed floral designs.

Messrs. THYNE & SON, Dundee, showed Sweet Peas in variety, Pentstemons, Phloxes, Violas and Antirrhinums. A small table was reserved for each class, and the front of the exhibit was set off with a rockery filled with rock plants. The flowers were good, but the arrangement was somewhat stiff and formal.

Messrs. D. & W. CROLL, Dundee, showed Gladiolus, Begonias and Abutilons in variety. They also had a small collection of Apples.

THORNHILL HORTICULTURAL.

AUGUST 26.—The annual show of this Dumfriesshire Society was held here on the above date. The exhibition proved equal to those of former years, and, as usual, a fine display of foliage and flowering plants was staged from the gardens of the Duke of Buccleuch, at Drumlanrig Castle (gr. Mr. David Inglis). In the cut-flower classes Sweet Peas and Carnations were specially good. The leading prize-winners in the open classes were: Mr. R. ROGERSON, Mr. JOHN MACAULAY, Mr. JAS. M. WYLIE, Mr. A. MCCREDIE, Mr. J. WALKER, Mr. T. McMEERING, Mr. JOHN WYLIE, Mr. R. BROOKS, Mr. J. McNAUGHT, and Mr. R. BROWN. In the amateurs' classes, Mr. D. BURNS, Tibbers, was awarded the Silver-gilt Medal of honor for a group of cut flowers.

CATALOGUES RECEIVED.

BULBS.

ROBERT VITCH & SONS, 54, High Street, Exeter.
W. DRUMMOND & SONS, 57 & 59, Dawson Street, Dublin.
EDMONSON BROTHERS, 10, Dame Street, Dublin.
BARK & SONS, 11, 12 & 13, King Street, Covent Garden, London.
M. H. SINCLAIR, 156A, Union Street, Aberdeen.
CHARLES DUNN, Royal Nurseries, Slough.
H. N. ELLISON, 5 & 7, Bull Street, West Bromwich.

MISCELLANEOUS.

ROBERT VITCH & SONS, 54, High Street, Exeter Fruit Trees.
J. R. FRISONS & SONS, Loxham, Nottinghamshire—Hardy Fruit and Roses.
THOMAS S. WARD, Liphm, Liphm, Middlesex—Hardy Plants, Roses, Fruit Trees.

FOREIGN.

V. LAMONNET FILS, Rue du Montet, 134, Nancy, France—Bulbs.
WILHELM MÜLLER, Negera Inferior, Italy—Bulbs.
J. C. SCHMIDT, Erfurt, Germany—Bulbs and Seeds.
COP. KIEFF & SONS, Lijnnden, near Haarlem, Holland—Bulbs.

Obituary.

ALFRED COLE.—This well-known gardener died on August 22, in his 73rd year. He was the second son of the late William Cole, Fog Lane Nurseries, Withington, near Manchester. Deceased commenced his gardening career in his father's nurseries, and, after gaining further experience he was appointed gardener to the late Joseph Broome, Esq., Woodlawn, Didsbury, Manchester, who showed many important exhibits at the Manchester shows. When Mr. Broome removed to Sunny Hill, Llandudno, Mr. Cole continued in his service. He was an excellent plant grower, and took great interest in the collections at Sunny Hill, where wonderful success was achieved with plants in the open garden, notwithstanding its exposure to the sea winds.

ROBERT LAIRD.—We learn with deep regret of the death of Mr. Robert Laird, head of the firm of Messrs. R. B. Laird & Sons, Ltd., Edinburgh. Mr. Laird, who was 51 years of age, had not enjoyed good health for some considerable time, and, about the middle of August he undertook a visit to the Shetlands for the purpose of a holiday. He suffered a chill during the rough sea passage, and he returned to his home at Pink Hill, Edinburgh in an enfeebled



THE LATE ROBERT LAIRD.

condition. He became gradually worse, and passed away on the 2nd inst. Mr. Laird will be missed in Scottish horticultural circles, for he was officially connected with the leading Scottish gardening associations, including the Royal Caledonian Horticultural Society. Much of the success of the Scottish Horticultural Association is also due to his work as secretary during a period of ten years. It will be remembered that when he relinquished this office he was publicly presented with a piece of plate. He also took an active interest in the work of the Royal Scottish Arboricultural Society. Mr. Laird was a fine sportsman, and during his younger days was a prominent football player; more recently his favourite pastimes were golf and curling. He leaves a widow and six children.

FRED C. CHAPMAN.—Fred C. Chapman, florist, of Grand Rapids, U.S.A., and one of the oldest residents of Madison Square, died on August 17 at his home at the age of 75 years. He was born at Stamford, England, and emigrated to the United States in 1880, making his home at Grand Rapids. He retired from business about eight years ago. He is survived by a widow and one son.

JOHN ROBSON.—The death of Mr. John Robson, Nurseryman, Altrincham, Cheshire, occurred at Altrincham on the 31st ult.

JOHN BIRNIE.—The American horticultural papers record the sudden death on August 15 of Mr. John Birnie, a prominent New York florist, whilst attending the annual convention of the Society of American Florists at Baltimore. He was born at Buchan, Aberdeenshire, in 1853, and served his apprenticeship at Strachan House Gardens in that county. He emigrated to Canada early in his career, and subsequently resided at Buffalo, U.S.A., and Brooklyn. Later, he commenced business as a market nurseryman at Jersey City. After a period in that town he removed to Greenville and later to West Hoboken, where he was engaged in the florist's business at the time of his death. He was one of the most prominent florists of New Jersey. He made a specialty of Pelargoniums, Verbenas, bedding plants and Carnations for the New York markets, where he had a large and prosperous trade. He was a director of the New York Plant Growers' Association, a trustee of the New York Florists' Club, and one of the oldest members of the Society of American Florists. Mr. Birnie is survived by a widow, two sons and four daughters. His second son was engaged in business with him. Members of the New York Florists' Club and other florists' organizations attending the American Florists' convention, to the number of 85, followed the remains to the railway station, the interment being at West Hoboken.

WILLIAM B. MAY.—The Florists' Exchange records the death at Hartford, Connecticut, U.S.A., of Mr. William B. May, formerly a member of the garden staff at Kew. He was for 34 years gardener to James J. Goodwin, Esq., in the land of his adoption.

EDWARD McNALLY.—The death of Mr. Edward McNally, of Anchorage, U.S.A., a native of Dublin, Ireland, is announced in the American papers. Mr. McNally settled in America 45 years ago, and engaged in business as a florist at Anchorage. He is described as one of the best-known residents of Jefferson County.

JOSEPH R. FREEMAN.—Mr. Joseph R. Freeman, florist, of Washington, U.S.A., died at New York on the 22nd ult. Mr. Freeman was born in Yorkshire, England, 61 years ago. After serving an apprenticeship of nearly five years under the late Michael Saul, gardener to Lord Mowbray, at Stourton Park, he emigrated to Washington, where he found employment as greenhouse foreman at the establishment of the late John Saul, and remained there until September, 1872, when he became connected with the United States Agricultural Department, under the late Mr. W. H. Saunders, remaining two years. He was superintendent of the Oak Hill Cemetery, Washington, for some years, and later of Bonnie Brae Cemetery, Baltimore Co., leaving the latter place in 1880 to start in business in Washington. Mr. Freeman is survived by his wife, three sons, and one daughter.

OSCAR WATTECAMPS.—We regret to announce the death of this young and promising Belgian, who died at Ghent after a long illness contracted in the Dutch East Indies. M. Paul Lippens, who pronounced the funeral oration at the grave side, stated that there have been few more successful careers in the Dutch Indies than that of Oscar Wattecamps. He left Belgium about the middle of 1906 in the service of the Galang Exploitation Maatschappij. His energy, his capacity for organisation, and his botanical knowledge helped him rapidly to rise in the career of a planter. In February, 1910, he accepted the responsibility of Director of the Estates, and in the May of the same year he was appointed General Manager of the Galang Besar Rubber Plantations, Ltd.

DEBATING SOCIETY.

BRISTOL AND DISTRICT GARDENERS'.—A meeting of the members of the association was held on August 31, at St. John's Hall, Bristol. Mr. Perry occupied the chair. Mr. Sladby, who delivered the Columbian address, gave a lecture on "Ferns." In a list of varieties suitable for the decoration of dwelling rooms and greenhouses, the lecturer enumerated Adiantum cuneatum, A. gracilimum, A. grandiceps, A. concinnum and A. Farleyense; Pteris cretica, P. cretica alba, P. argyrea and P. setulata. The compost should consist of loam, leaf-soil, crushed charcoal and sand. For exhibition purposes the lecturer mentioned Gynnochroma chrysophylla, G. argyropolia, Davallia Mooreana, D. gigantea, Microlepia birtia cristata and Nephrolepis in variety.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending September 2, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—Over the Kingdom as a whole the conditions were fair to fine, but in Scotland and the north of Ireland rain fell rather frequently. Thunderstorms occurred in various districts towards the middle of the week.

The temperature.—The mean daily surface temperature amounted to more than 5° in England E. The highest of the maxima were recorded on the 28th at most Scottish stations, the average varying from 54° in England S.E. and 56° in Scotland, to nearly all parts of England. The values ranged from 50° in England E. (at Cromer and Hillington), 88° in the Midland Counties, 87° in England S.E., and 86° in England N.E. to 70° in Scotland W., and to 66° in Scotland N. At Greenwich Observatory the maximum on September 2 was as high as 89°, and at Camden Square 90°. The lowest of the minima varied from 31° in England S.E. (at Marlborough) and 37° in Scotland E. to 48° in England N.E. and 49° in Scotland, to 54° in the English Channel. The lowest grass readings were 30° at Crabbie on August 30, and 28° at Llangunlith on September 1. At several stations the thermometer remained above 40°, and at Southernmost points the minimum was 50°.

The mean temperature of the sea.—At all stations except Lerwick and Newquay the water was warmer than during the corresponding period of the previous year, the difference at Margate and Lamlash being as much as 1°. The means for the week ranged from 68° at Margate, above 66° at the Shipwash Lightship and Eastbourne, and 63° at Plymouth to 54° at Lamlash, and to 51° at Lerwick.

The rainfall was more than the average in Scotland N. and W., but less elsewhere. In England E. the fall was less than 0.1 inch. Large quantities were experienced in the Scottish district about the middle or towards the end of the week. At Glencarrow there was 1.27 inch on August 31, and 1.30 inch on September 1, and at Fort William 1.84 inch on the 31st. Rather more than 1 inch fell at Portlough and Rathenay on the 31st. A thunderstorm at Aberdeen yielded 1.14 inch of rain on the 27th.

The bright sunshine exceeded the normal in all districts, the excess being very uniform. The percentage of the possible duration of bright sunshine in the English Channel was 40, and 40 in Scotland S.E. to 41 in Ireland N. and Scotland E., and to 40 in Scotland N.

THE WEATHER IN WEST HERTS.

Week ending September 6.

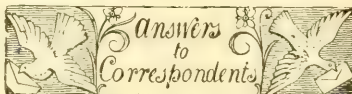
The month warm and dry, on succession.—The day temperatures during the past week were higher than in either of the two previous weeks, and on the hottest day the highest reading in the thermometer screen was 88°. On the other hand, on two nights the exposed thermometer fell respectively to within 7° and 3° of the freezing point. The ground was as much as 5° warmer than is seasonable, both at 1 and 2 feet deep. Rain fell on two days, but to the total depth of less than a tenth of an inch. Since the end of June, or in the last 10 weeks, only 1½ inch of rain has fallen, two-thirds of which small amount was deposited on four days. This is the ninth week since there was any percolation at all through either of the soil gauges. The sun shone on an average for 24 hours a day, or for three hours a day longer than usual at the beginning of the Autumn. On two days the sun shone for 11 hours, which is a very unusual duration of bright sunshine for September. Light airs and calms being prevalent during the week, and the direction of these light airs were very variable. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable quantity for that hour by as much as 24 per cent. On two days the difference between the mean readings of an ordinary thermometer and one with its bulb kept constantly moist amounted, at 3 p.m., to respectively 21° and 20°.

AUGUST.

Extraordinarily hot and dry.—This was the hottest August I have yet recorded here, that is to say, in the past 35 years. The day temperatures were on an average nearly 8° warmer, and the night 3° warmer than their respective means for the same 25 years, and higher than in any August of the same period. On 11 days the highest reading in the thermometer screen exceeded 90°, on five days 85°, on three days 90°, and on the hottest day of all reached 96°, which is the highest shade temperature yet recorded here at any period of the year. On the coldest night the exposed thermometer fell to 56°, which is the highest of the lowest readings in the thermometer temperature yet recorded here in August. The rain fell on only 11 days, to the total depth of less than three-quarters of an inch, which is just a quarter of the average rainfall for the month. On two days the difference between the mean readings of an ordinary thermometer and one with its bulb kept constantly moist amounted, at 3 p.m., to respectively 21° and 20°.

THE SUMMER.

Extraordinarily hot, dry, and sunny.—June was moderately warm, while July and August taken together were extraordinarily hot. In the twenty-five years, the summer of 1885 was the warmest summer comes out as the hottest of them all. On the warmest day the temperature in the thermometer screen rose to 96°, the highest reading ever recorded here, and on the coldest night the exposed thermometer registered 56° of frost, which on the other hand is, with two exceptions, the lowest extreme minimum indicated here by that thermometer in any of the twenty-five years. The total rainfall only amounted to 3½ inches, which is less than half the average quantity for the three summer months. Of that amount 2½ inches was deposited in June, leaving only 1 inch for July and August. This was the driest summer since 1867, or for 24 years. The sun shone on an average for eight hours a day—making this the brightest summer since 1867, I have to say, in my record. E. M., Berkhamsted, Bucks.



ADDRESS: *Coalite*. The address of the firm which manufactures the fuel known as Coalite is 3, London Wall Buildings, London.

AERIAL OR STEM TUBERS OF POTATOS: *A. M., New Barnet*. The specimens of stem tubers of Potatoes are interesting, but not uncommon. Examples were illustrated in the *Gardeners' Chronicle* as long ago as November 1, 1873. The tuber being a modified bud, it is not surprising to find that tubers are sometimes produced as axillary outgrowths on the stem.

CARNATION ATTACKED BY INSECT PEST: *L. J. G., Bucks*. Spray the plants with liver of sulphur every third day at the strength of 1 ounce in 3 gallons of water.

FERNS: *H. P.* There is no disease present in your Ferns; the damage is due to scorching by sunshine whilst they were wet.

GRAPES: *R. H., Frodsham*. The berries have been scorched by the sun whilst they were damp. Ventilate the house early in the day to allow the fruit to become dry before the sun-rays become powerful.

INSECT: *H. Fox*. The large "fly" you send is *Sirex gigas*, the wood-wasp (see fig. 94). The female insect is very destructive to Coniferous trees, piercing through the bark and depositing her eggs in the wood by means of an ovipositor. The wood-wasp is like a hornet in appearance, but has no power to sting.

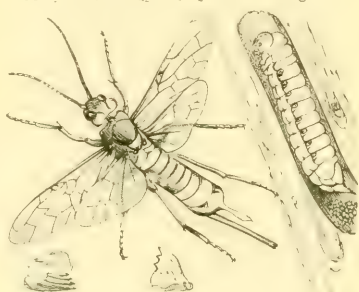


FIG. 94.—*SIREX GIGAS*: THE WOOD-WASP.

IVY: *W. C., Ravenscourt Park*. There is no disease present in the Ivy leaves; the injury has been caused by drip.

NAMES OF FRUITS: *N. Tost*. Gooseberry Apple; *R. S. Quarry*; Dumelow's Seedling—*J. MacD., Stirling*. 1, Pond's Seedling; 2, Yellow Magnum Bonum; 3, Mitchellson's; 4, Kirke's—*P. R.* 1, Northern Dumping; 2, French Crab; 3, not recognised; 4, Yorkshire Beauty; 5 and 7, Ribston Pippin; 6, Yorkshire Greening—*W. Cooper*. Harvey's Wiltshire Defiance—*A. W. D.* Your labels were all detached; send again with the numbers fastened more securely.—*F. A. D.* 1 and 2, Lane's Prince Albert; 3, not recognised; 4 and 5, Lord Derby; 6, Cox's Pomona. The Pears arrived in a condition of pulp.—*A. B. C.* (Apples) 1, Alfriston; 2, Ribston Pippin (Pears) 1 and 2, Beurré Diel; 3, Beurré d'Amanlis.—*C. A. F.* 1, Purple Gage; 2, Prince of Wales; 3, Prince Englebert; 4, Denniston's Superb; 5, Blue Prolific; 6, Belgian Purple.—*W. Taylor*. Duchess of Oldenburg.

NAMES OF PLANTS: *T. Euphorbia Lathyrus*.—*A. J. C.* 1, Achillea millefolium; 2, Hibiscus syriacus.—*A. B. C.* 1, Juniperus chinensis aurea; 2, Thuja occidentalis aurea; 3, Juniperus chinensis; 4, Cupressus pisifera squarrosa; 5 and 6, C. Lawsoniana vars.; 7, Scutellaria galericulata; 8, Angelica sylvestris; 9, Pulicaria dysenterica; 10, Valeriana officinalis; 11, Sequoia gigantea.—*S. H., Queen's Co.* Hibiscus syriacus.—*Ceris*. 1, Bignonia radicans; 2, Podocarpus chilina.—*F. W. T.* Lonicera sempervirens.—*Z. G.* 1, Populus canescens; 2, P. alba; 3, Pyrus Aucuparia; 4, Cotoneaster frigida; 5, Ptelea trifoliata; 6,

Acer dasycarpum.—*R. E. Head*. Lathyrus sativus.—*G. T. W.* 1, Statice eximia superba; 2, S. latifolia.—*J. M. D., Stirling*. 1, Agave gemiflora; 2, (the small tufted plant), Ophiopogon japonica.—*W. & S. Aster Amellus*.—*A. R.* 1, Oncidium flexuosum; 2, Satyrium membranaceum; 3, Polystachya ottoniana.—*H. T.* 1, Davallia pectinatifolia; 2, Davallia ornata.—*W. B.* 1, Dracena amabile; 2, Dracena ornata; 3, Saponaria officinalis.—*G. C.* Cassine fulvida, often known in gardens as Diplopappus chrysophyllus.—*F. J. N.* Hibiscus syriacus.—*B. & S.* Glyceria aquatica.—*Anxious*. 1, Rudbeckia laciniata; 2, Heleum autumnale; 3, H. a. var. pumilum.—*E. K.* 1, Indigofera heptepetala; 2, actinidia chinensis.—*E. C.* Codiaums (Crotons): 1, Souvenir de Thos. Rochford; 2, Flambeau; 3, Laingii; 4, Princess of Wales; 5, Countess Surberga; 6, Mortii; 7, Etna; 8, Aiguburnensis; 9, Aneituensis; 10, Emperor Alexander III.; 11, Andreanus; 12, Queen Victoria; 13, nobilis.

ORCHID LEAVES WITH MARKINGS: *F. V. T.* The injury to the Orchid foliage is caused by the fungus known as Thielavia basicola. Sponge the leaves on alternate days with a solution of soft soap, adding 1 ounce of liver of sulphur dissolved in 3 gallons of water.

PELAGONIUMS AS STANDARDS: *F. S.* Zonal Pelargoniums make excellent decorative standard plants. Varieties should be chosen that are known to flower freely, and it may be taken as a rule that those which are best suited for winter flowering are best for training in this form. Select the best of the stock that has been used during the preceding winter as dwarf, bushy plants. In nearly every instance a strong shoot will be found to be pushing forth from the base of the plant, and this should be retained, gradually removing all other growths. This shoot will grow away freely, and in a season form a strong, main stem. A batch of plants should be treated in this manner every year to provide fresh stock. The scented-leaved Pelargoniums make excellent standard plants, and large specimens may be seen at Sunnersbury House, Acton. The largest of these are 7 feet in height, and 3 feet through the head, being sixteen years old. Both *P. capitatum*, the rose-scented variety, and *P. Radula* major need no pruning, merely training the shoots in their places by tying. *P. Clorinda* is a scented-leaved variety, producing handsome, pink flowers. Plants of this variety need to be renewed every year or two, so that it is necessary to propagate fresh stock each season. *P. Ardens*, a small-flowered, scarlet Pelargonium, is also very pretty grown as a standard.

POPULAR TREE WITH THREE HOLES: *Poplar, Rothshire*. The holes have most probably been made by the larvae of some boring insect, such as the wood-leopard moth. A piece of stiff wire inserted in the holes will most probably kill the larvae.

SCRIPTS FLOWERS FOR MARKET: *A. H. P.* If the flowers you name are well grown, and properly bunched and packed, there should be no difficulty in disposing of them to a salesman in Covent Garden Market. The amount they will realise will depend upon the quality, the supply, and the demand when they are ready for sale. *Gypsophila elegans* does not travel well except when packed upright in baskets, so that the inflorescences are not crushed. This flower is usually sent by the growers in vans, seldom by rail.

TOMATO FOLIAGE: *Puzzled*. The succulent, fleshy condition of the Tomato leaves is such as is often seen after the use of a fungicide containing a copper salt; they are free from fungous disease. If copper has not been used, then the cause must be looked for in some error of culture.

Communications Received.—*F. E. A. P.*, Ireland.—*R. Melv.* S.W.G. G.W.B.A.G. G.M.H. T.H. H.W.A. D. E. W.S. W.J.V. G.L.B. J.B. T. & Co. A.D. J. Carlisle. Mrs. J. W. B. & Sons.—*W. F.* Mrs. W. M. R. W. & S. W. E. S. H. M. M. G. C. Canada. W. H. R. Netherlands. C.T.D. B.R. Holland. A.O.H. B.M.—*W. F.* J. G. A. C. B. W. P. Reigate. J. A. D. L. J. B. S. S. A. G.W.D. J.W.R.N. N. J. C. Fair Play H. Cross.—*J. T.* Twickenham. W. B. H. A. D. R. W. R. D. D. & Co.



THE Gardeners' Chronicle

No. 1,290.—SATURDAY, Sept. 16, 1911

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THE LILY SEASON IN SCOTLAND.

THOUGH Oriental and American Lilies have, as a general rule, flowered admirably this year, their growth, in the earlier stages of their development, was seriously affected by the long absence of rain. The great Himalayan Lily (*Lilium giganteum*), for example, did not attain in my garden to anything approximating to its normal height, though it seems to have been more successful at Monreith, in this county, where, as Sir Herbert Maxwell has recorded in these columns, it reached an elevation of from 7 feet to 8 feet. But there is always, in such cases, some cultural consolation. In my own garden, whilst its flowering stem was by no means imposing, it made amends in the remarkable dimensions and luminousness of its ivory-white, violet-tinted flowers, which were, without exception, the largest I have seen. The grandest specimen of *L. giganteum* that has come

under my notice this year was shown to me recently by the Viscountess Dalrymple, an ardent horticulturist, in her ladyship's interesting "wild garden" at Lochinch Castle. It was fully 10 feet high, and had 15 magnificent flowers. The quantity of seed its great capsules at present so firmly enclose must be enormous.

L. monadelphum Szovitzianum, growing in a comparatively shady portion of my garden, in congenial clay, was little less in stature than it has been in former years. But the slight difference in height was somewhat in its favour, from an artistic point of view, for it has frequently ascended to such an elevation that its lemon-coloured flowers, enfolded by the leaves of a venerable Apple tree, were sometimes passed by without notice.

L. Henryi, with its rich, orange-coloured blossoms, by reason of its reliability and splendid effectiveness, is one of my most precious possessions. Planted in ordinary garden loam, slightly enriched with an admixture of leaf-mould, it has flowered in the same situation for at least 13 years, and no season, however exacting, seems to affect it very much. I have been greatly charmed by the reappearance in my garden of that veritable gem, *L. japonicum* [Kramer], introduced from the mountain regions of Japan by the late Dr. Wallace, of Colchester. Replanted two years ago in what I deemed a favourable situation, in a fibrous, peaty soil, I imagined, when it failed to show itself last season, that it must have died; but, as Lord Beaconsfield once observed, "it is the unexpected that happens," and such has been my experience with this lovely Lily. It is the subject of a coloured plate in Mr. Grove's highly-interesting and instructive book on Lilies (Present-day Gardening series), which I had the pleasure of perusing about a fortnight ago in Logan House.

L. Washingtonianum, after flowering with graceful effect for many seasons, has died out with me, which I greatly regret, for its refined aspect, combined with its delicate fragrance, make it by far the most fascinating of American Lilies. Of the varieties of *L. auratum*, my supreme favourite is virginale, an almost white derivative from *A. platyphyllum*. It is quite as reliable and enduring as its parent, and its flowers, though by no means numerous, are very handsome. I ought to record that my nearest neighbour, Mr. John Hill, who is at once a mechanic, a poet, and an earnest amateur horticulturist, has some very fine specimens of *Lilium auratum platyphyllum* in his garden this year. I recommend to him a trial of the most distinctive of this invaluable family, viz., *rubro-vittatum*.

Of the varieties of *L. longiflorum*, those that succeed best in southern Scotland are Wilsonii and giganteum, of which the latter vigorous variety has doubtless received its name from the dimensions of its long and lustrous blooms. Of *L. speciosum*, which combines refinement of form with exquisite fragrance, the most promising

varieties this season are roseum, Melpomene, and Kraetzeri, of which the last-mentioned is especially beautiful, with its finely-reflexed, green-banded, snow-white flowers.

It is somewhat unfortunate that such highly-attractive Asiatic Lilies as *L. nepalense*, *L. Lowii* and *L. Wallichianum* are not adapted for garden cultivation for they are grandly effective when grown in a conservatory. David R. Williamson, *Manse of Kirkcaldy, W. Lothian-shire*.

THE ROSARY.

HYBRID RUGOSA ROSES.

THE notes on The Pruning of Roses by *White Rose* (see vol. xlv., p. 129) is one of extreme interest, if only for the reference it contains to the Rugosa section of Roses. I am somewhat astonished at the neglect by British nurserymen of such a charming Rose as Conrad Ferdinand Meyer, and the very meagre descriptions to be found in catalogues. I know of only one grower who devotes a few lines in his list to this Rose, and he admits that it is one of the finest acquisitions to the Rose family. I am often puzzled at this apparent neglect on the part of our nurserymen of this splendid Rose, and cannot find any circumstance to account for it. In nearly all catalogues we find this variety listed among the ordinary Rugosas, which is most misleading, for it is really a hybrid of outstanding merit and importance, and to the ordinary amateur grower its inclusion in this list conveys nothing whatever of its exquisite beauty and total difference from others of the section. It was raised by the eminent German botanist, Dr. Müller, from a cross between a seedling variety from Gloire de Dijon crossed with Duc de Rohan, and the Rugosa variety named Germanica. Traces of this parentage are readily noted in the growth and habit of Conrad F. Meyer, and it is a splendid Rose with very fragrant imperial pink blossoms of the finest form, making an outstanding object in gardens.

The variety seems to possess every desirable virtue among Roses; it is easily grown and thrives in almost all soils; its wood is almost frost-proof, and it is a Rose which, in Scotland at least, resists mildew. It yields a wealth of blossoms from early June till late October, and, grown as a standard, it is superb. The time is not far distant, I think, when we may look for a hybrid Rugosa section in all good catalogues, for just as Pernet Ducher has given us a new race of Pernetiana Roses, Dr. Müller has initiated a race of hybrid Rugosas which will prove of the greatest importance and value in gardens. Several new sorts are now in commerce, but it is too early to write of their merits, but mention may be made of the white sport from Conrad F. Meyer, named Nova Zembla, one of the sweetest of white-flowered varieties. The new yellow hybrid Rugosa Daniel Lesueur mentioned by *White Rose*, and which he judges to be very nearly related to the Dijon Teas, was put into commerce in 1909, and I can only find it mentioned in one British catalogue; this also is one of Dr. Müller's hybrids. I was only able to procure plants of this Rose last autumn, and I am very anxious to see it in flower, but I cannot agree with your correspondent as to its being related to the Dijon Teas. Certainly nothing in the appearance of the wood and habit of growth suggests this contention, and a consideration of the parentage dispels any doubt on the point. A seedling from Pierre Notting and Safrano crossed with *R. rugosa Germanica*, gave Daniel Lesueur, and there is surely no trace of Dijon

Tea in that cross. If this new yellow Rose is anything like its progenitors, what a noble trio we shall possess with Conrad F. Meyer, Nova Zembla, and Daniel Lesueur. Fragrance will certainly be one of the most outstanding features of these Hybrid Rugosa Roses, and in Gravereaux's variety of 1904, named *Rose à Parfum de l'Hay* (*R. Damascena* × *General Jacqueminot* × *R. Germanica*), we have a brilliant red flower of unusually powerful perfume. —George M. Taylor, Mid Lothian.

ROSA HEMISPHERICA.

I HAVE been much interested in the discussion as to this Rose (see vol. XLIX., p. 418 and vol. L., p. 92), and have considerable sympathy with Mr. G. M. Taylor's object in collecting yellow Roses.

I think there has been general agreement since Lindley's time that *R. sulphurea* of Aiton is the same as Hermann's *R. hemispherica*. First, as to the date of its cultivation, the following quotation from Parson's (New York, 1847) may be of interest. *R. sulphurea*, Ait., "is one of the oldest inhabitants of our gardens, though the exact year of its introduction is unknown. Ludovico Berthema tells us in 1503 that he saw great quantities of yellow Roses at Calicut, whence it appears probable that both the single and double-flowered varieties were brought into Europe by the Turks. Parkinson tells us "... that the double yellow Rose was first procured to be brought into England by Master Nicholas Lete, a worthy merchant of London and a great lover of flowers from Constantinople, which, as we hear, was first brought thither from Syria, but perished quickly with him, and with all others to whom he imparted it; yet afterwards it was sent to Master John de Frangeville, a merchant of London and a great lover of all Rose plants, as well as flowers from which is showing the greatest store that is now flourishing in this kingdom."

It is clearly the same Rose as that described by Parkinson in his *Paradise* (1629) as *Redulea mutiplex*, the double yellow Rose. He notes the difficulty in getting it to open, and that it was "very tender with us here about London." Hermann, who wrote his "De Rosie" in 1762, described it under the name *hemispherica*. Lindley (1820) who treated Aiton's *sulphurea* and Hermann's *hemispherica* as identical, calls it by far the most splendid of the genus, and says that it has never been heard of in a single state nor even near it. He notices the difficulty in making the Rose expand, and that Sir Joseph Banks had it growing and flowering in the greatest luxuriance when planted in the soil of a marsh.

This Rose seems to have formed a subject of discussion in the first vol. of the *Gardeners' Chronicle* (see p. 811), from which it would appear to have proved most successful when grown on an east aspect, next on a north, and then on a west aspect, only one success has been recorded on a south aspect. Jamain and Founey (Paris, 1873) note, evidently with some surprise, that though this Rose does better on a moist than a dry soil, it succeeds fairly well in France and Germany, but seldom in England. Mr. Wm. Paul in *The Rose Garden* (9th edition, 1888), has a long discussion on the subject, and says he has never heard of it flowering near London or in the immediate neighbourhood of any large manufacturing town. He mentions Ballater and Edinburgh in Scotland, and a house in Enfield Chase, where it was planted on a N.E. aspect, as places where the Rose has succeeded.

Regel (1877) calls Persian yellow a garden form of this Rose; it is certainly a far easier Rose to persuade to do well in England, though, as Mr. Paul says, it is "not of equal beauty" with *R. hemispherica*. It is clear the cultivation of this Rose has long formed a subject of discussion for English gardeners, and seems to be one of those difficult subjects for English

gardeners, requiring a cool, moist atmosphere, with plenty of sun, plenty of water, and perhaps free drainage, and one may further suspect that its requirements might be more easily met in Scotland than England.

To turn to the other subject, *R. pimpinellifolia* *lutea* has long interested me. I have noticed considerable variation in the depth of yellow in the petals in different plants of this variety, and, I fancy, in the same plant in different years. I wonder if Mr. G. M. Taylor has noticed the specimens at Kew. A few years ago I was greatly struck with the deep colour of some of these plants, which, as I then saw them, was almost as deep as Persian yellow. With me *R. pimpinellifolia* *lutea* is perhaps scarcely so tall a grower as either *R. hispida* or *R. xanthina*, but I fancy I have seen it equalling both these Roses in size. *White Rose*.

BRITISH ASSOCIATION.

BACTERIAL DISEASES OF PLANTS.

THAT bacterial diseases of plants are beginning in this country to attract the attention they deserve was evidenced by the discussion at the meeting of the Agricultural Sub-section of the British Association at Portsmouth, on the 1st inst. The first contribution was a useful summary of our present knowledge of this subject, given by Prof. M. C. Potter. It is only of recent years that the existence of bacterial diseases in plants has been generally acknowledged. As the result, however, of the evidence afforded by very many inoculation experiments, the earlier scepticism has given way, and there are now many investigators in this, as well as other countries engaged in this line of research. Although any strict classification at present is impossible, there are



FIG. 95. PLUM "BLACKBIRD": A DESSERT VARIETY.

(Received R.H.S. Award of Merit on the 29th ult., when shown by Messrs. Laxton Bros.)

TWO NEW PLUMS.

At the meeting of the Royal Horticultural Society on the 29th ult., Messrs. Laxton Bros., Bedford, exhibited several seedling Plums. The variety *Blackbird* (see fig. 95) was recommended an Award of Merit by the Fruit and Vegetable Committee. It was raised from *The Czar* × *Curlew*. The fruit is of a medium size and has a purple skin; the flesh is very pleasant and the variety should prove a useful addition to dessert Plums. *Prosperity* (see fig. 96) is also a purple-skinned fruit, the flesh being yellow. The parents of this variety were *Grand Duke* and *The Czar*. The Committee was favourably impressed with this culinary variety, and appointed a small sub-committee to report on the habit and cropping qualities of the tree, but, as the crop has since been gathered, the inspection must take place next season.

certain well-marked types of bacterial disease. A large number fall under the head of the soft rots, of which the white rot of Turnip may be taken as typical. Pure cultures may be obtained of this bacilli, inoculations from which on perfectly sound roots produce the characteristic symptoms of the disease in about 12 hours.

The bacilli secrete an enzyme which rapidly dissolves the middle lamella of the cell wall and causes the swelling and softening of the cellulose. They then crowd along the inter-cellular spaces, at the same time producing a toxin which destroys the protoplasm. With the death of the protoplasm the cell sap escapes, affording additional nutriment for the bacteria.

In this way the decay spreads from the point of infection through the root, until at the end of a few days the greater part of the root is reduced to a greyish soft mass.

Entry can take place through the epidermis of young plants that have not yet developed a cuticle, but only through a wound in the older parts. Another group of bacterial diseases is the black rots, e.g., the black rot of the Cruciferae (*Pseudomonas campestris*). In the early stages, the attack is confined to the vascular bundles, the vessels of the xylem becoming crowded with bacteria and black or dark brown in colour. The rot then extends along the medullary rays, giving a characteristic radial structure, and only comparatively late into the parenchyma. Finally, therefore, the whole flesh becomes discoloured, although externally the root may appear quite sound. In the black rots no conspicuous swelling of the wall takes place, so that the tissues do not become broken down into a soft mass.

Rather similar to the above are the bundle rots. The xylem vessels are again the elements primarily attacked, the soluble carbohydrates, &c., which they contain constituting a favourable medium for the growth of the bacteria. The vessels eventually become so blocked with the mucilaginous mass of bacteria that the

has been suggested that this resemblance is more than merely superficial, and may throw light on this difficult problem of animal pathology.

The disease known as fire-blight (*Bacillus amylovorus*) is of historic interest, as being the first plant disease referred to a bacterial agency (Burrill 1881). As in the fungi, the relations between host and parasite depend greatly on external conditions—a lowering of the vitality of the host by bad cultural conditions, excess of nitrogenous manure, &c., predisposing to rot. Infection would seem to take place through stomata, nectaries, or wounds, dispersion occurring readily through the xylem vessels. Insects, slugs, &c., no doubt carry pathogenic germs, and by their bites enable these parasites to gain an entrance into the host in a manner parallel to the carriage of Malaria by mosquitoes.

Mr. F. T. Brooks contributed a paper on "Bacterial Gum Diseases." There would seem to be no doubt that some of the "gum diseases" attacking many plants are bacterial in nature. Thus Erwin F. Smith (1904), working in America, proved conclusively by means of in-

attacked ever recovers. The production of gum, which is such a conspicuous accompaniment of the disease, is almost certainly due to a transformation of certain of the sugars. Thus the bacterium would not grow at all on pure cellulose; growth took place, but no gum was produced when glucose was used as a medium, while in the case of cane sugar growth and much gumming occurred.

The mosaic disease of the Tobacco plant occurs in almost every region where Tobacco is cultivated. It was formerly attributed by Meyer and Iwanowski to bacterial agency, but more recent work by Hunger and others points rather to the conclusion that the disease is due to some physiological disturbance within the plant.

A BACTERIAL DISEASE OF THE POTATO PLANT IN IRELAND.

At a meeting of the Agricultural Section of the British Association, Mr. G. H. Petybridge, Economic Botanist to the Department of Agriculture and Technical Instruction for Ireland, gave an account of a disease of the Potato plant (including tubers) in Ireland, of which no detailed account has been published.

The existence of one or more bacterial diseases of the Potato in Ireland has been assumed for the past eight or nine years, but the matter has not been closely investigated. Early in the present century, Delacroix investigated a bacterial disease of the Potato in France, which caused yellowing of the foliage, and, eventually, disease of the tubers. Microscopic examination showed a development of gummy matter in the wood vessels, and the presence of a bacterium which was thought to resemble the *Bacillus solanacearum* of F. E. Smith in America.

From an examination of material sent from Ireland, the author judged the disease to be prevalent in that country also.

In a late paper, Delacroix identified "brunisure" (browning) of the Potato as due to the same organism, which was thought to infest the plant from the soil. Later work by Johnson in Ireland suggested that other organisms pathogenic to the Potato occurred, and in 1906 he recorded *B. phytophorus*, as a general cause of "yellow blight," "black leg," and "Potato tuber rot" in Ireland.

It was in order to clear up uncertainty on this point, and to obtain information as to the nature and cause of what appeared to be a fairly widespread disease of the Potato that the investigation described below was undertaken.

It was first determined that "yellowing" or "yellow blight" of the Potato was not a disease due to bacterial or fungal action, but a pathological condition induced by unfavourable conditions. Black stalk rot, the name suggested by the authors for the disease, also known as "black leg," or "schwarzbeinigkeit" in Germany, has been proved to be of bacterial origin. The organism causing it has been isolated and grown in cultures, from which fresh infections have been readily produced.

The symptoms previously had often been confused with those caused by the fungus *Sclerotinia sclerotiorum*, in the so-called stalk disease. Black stalk rot usually appears early in the season, often as early as the second week in June. Affected plants are stunted in growth, the foliage becomes pale green or yellow, and ultimately wilts. Individual stalks are easily removed from the soil, owing to the damaged condition of the roots, and the stalk becomes blackened and rotten at or below the ground-level—a condition which may spread later to the upper branches. Diseased stems, split longitudinally, show that the softer tissues have become soft and blackened, and there is usually a sharp line of demarcation between the diseased and healthy tissues. In section, the vascular tissues are seen to be deeply discoloured, and the stem cuts toughly.

Yellowish-brown gummy material occurs in

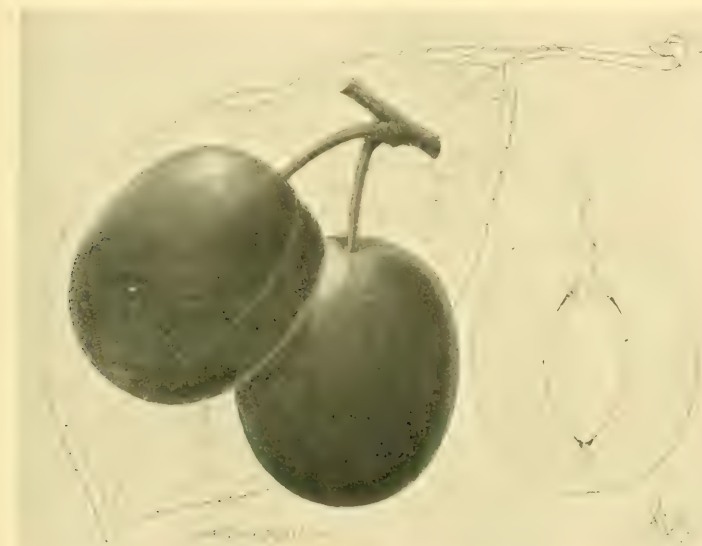


FIG. 96. PLUM TREE DISEASE (GRAND DUKE OF CZECH)

supply of water is cut off, and, as a consequence, the shoot wilts above the point of attack.

This sudden wilting of the foliage is one of the first symptoms of the disease; subsequently the whole plant shrivels and turns black.

To this class belong the Potato and Tomato disease (*B. solanacearum*); black-leg, the black stalk rot, &c. The tumorous diseases found in many plants form a special class; several have been traced to a bacterial origin. This is the case with the tuberculosis (rogna) of the vine, the tumour of the Olive and the Crown Gall. The tumours of other trees are probably also due to a bacterial cause. The excessive enlargement of individual cells characteristic of the swellings produced by *Plasmidiophora* and of those formed by *Azobacter* and *Urophycitis* on the Leguminosae is not found in these tumours. The cells, on the contrary, are usually smaller than the normal, due, no doubt, to stimulus to rapid cell division. A characteristic feature of these tumorous growths is their capacity for spreading through healthy tissues by means of branches or "fingers" which actually grow through the tissues of the host, recalling the spread of malignant growths in animals. It

oculation experiments that the gum disease of the sugar cane in Australia, previously described (in 1893) by Cobb, is caused by a specific bacterium which he named *Pseudomonas vascularum*. Similarly Aderhold and Ruhland have recently proved that a disease of Cherry trees in Germany is caused by a bacterium which they name *Bacillus spongiosus*. The symptoms are similar to those exhibited by Pear trees attacked by Pear blight, which is also a bacterial disease. It was found possible to isolate *B. spongiosus* from the masses of gum and to grow the organism in pure culture; inoculation experiments clearly showed that the bacterium was the cause of the disease.

This organism, however, is not the only cause of gumming, for certain fungi are known to induce similar exudations from Cherry trees.

The bacterium attacks young trees, and the production of gum is most manifest in spring. The bark alone is attacked, profuse gumming occurring at the affected parts. Death eventually ensues through the "ringing" of the tree by the spread of these areas, though the process is a comparatively slow one. In the absence of combative measures it is only rarely that a tree once

the cavities of the vessels, the walls are discoloured, and mobile bacteria are present in the vessels, from the cut ends of which a blackish liquid often exudes.

The organism causing the disease has been isolated from different parts of the plant, and injection from cultures rapidly induces the characteristic symptoms of the disease.

It is a rod-shaped bacterium, occurring in two's or three's, or often in long chains, the rods being themselves of considerable length. Movements of a rapid swimming or "darting" kind are exhibited.

The bacillus does not appear to be identical with any species yet described. It closely resembles *B. phytophthora*, but differs in several critical features. It is regarded, therefore, as a distinct species, for which the name *Bacillus melanges* is suggested. It is extremely pathogenic to the Potato, and retains its virulence for a long time in culture. It is worth noting that when the disease occurs early in the season, the diseased plants die, and subsequent growth of neighbouring healthy plants may obliterate the gaps so caused, so that the crop, later in the season, appears an entirely healthy one.

Plants attacked late may produce tubers

THROUGH LITTLE NAMAQUALAND WITH THE VASCULUM AND THE CAMERA.*

(Concluded from p. 191.)

The lower course of the Orange River lies in a valley of desolation. The mountains of the Garipeinet wall become successively lower and more barren towards the river; along a broad belt, one margin of which meets the bush which fringes the high-water mark, the other being 1,000 or 1,500 feet above it, vegetation is exceedingly scarce. The scenery of this desert zone is bold and very characteristic (see fig. 97). The mountains rise steeply from the strip of sand or alluvial gravel which forms the river bank; in some places their bases plunge so abruptly into the water, that neither plant nor animal can find a foothold; their rough, rock-strewn slopes harbour plants only here and there in exceptionally favourable crevices; their summits cut the sky in sharply-toothed ridges; they are separated by narrow, winding gorges, which imprison the dry, sandy beds of periodically tributary streams. And the whole surface reflects the intense sunlight as a blinding glitter. The violent winds which sweep up the valley day after day during the summer carry with them an immense amount

of the north, the rainfall is normally below the minimum necessary for the support of any but desert types of vegetation. This applies mainly to the mountain slopes. The sandy river-beds are well known to possess a fairly constant supply of subterranean water, derived partly from the eastern plateau, and to a small extent no doubt by infiltration from the permanent stream of the Orange River.

The plants found on the hills near Bethany Drift, are for the most part, species identical with or allied to those of the Namaqualand Mountain ranges. It has been pointed out elsewhere† that higher up, at Raman's Drift for example, where the river-bed is enclosed between high and precipitous walls of rock, there occur certain species which are found also in the tropical desert regions of Damaraland. Conspicuous among these is the large and striking *Euphorbia*, which Paterson‡ figured as *E. viroea*. At Bethany Drift the country on both sides is more open, the prevailing temperatures are no doubt lower, and therefore tropical species constitute a less marked feature of the vegetation, many of them (among these apparently the *Euphorbia*) being absent altogether.

In the minor river-beds, on the other hand, there are found a number of species which seem to belong to Bushmanland, or to the sandy plains of the Kalahari, rather than to the Montane region of Namaqualand. These include some shrubby *Asclepiads*, *Sisynyde sparteae*, species of *Acanthaceae*, *Cucurbitaceae*, and a few annuals.

The characteristic Namaqualand *Aloë* (*A. dichotoma*) flourishes exceedingly in the ravines a few hundred feet above the river, where its gaunt and spectral habit but intensifies the forlorn and forbidding aspect of the surrounding wilderness (see fig. 98). A comparison with the mounted figure in the illustration indicates the great height to which these trees frequently attain in these situations. It is probable that taller specimens occur but rarely in the stretch of a thousand miles, north and south, through which this species ranges. Side by side with it, perhaps in even greater abundance, there occurs a bushy *Aloë* (see fig. 98) whose relationship to *A. dichotoma* is not at first obvious. But a close examination of its bark, the branching of the stem, and the characters of its foliage, leaves no room for doubt that they are very closely allied. The bush is very characteristic of the lower hills of the Richtersveld, but the southern limit of its range is not more than 20 miles north of Anenous. Young plants of both tree and bush appear to be equally rare.† It is significant that the Hottentot does not distinguish between them, but calls them by the same name "Kokerboom." And, indeed, although the flowers of the bush have not been seen, they may quite confidently be referred to the same species. Their differences in habit depend upon the stage of the development of the stem at which branching occurs, and the extent of the branching. In the one case the branches are few, and the main stem does not fork until its summit stands some feet above the ground; in the other, branching begins as soon as the stem apex reaches the surface, and a very dense branch system is produced.

A stretch of the Orange River between Bethany and Skates Drifts is shown in fig. 99. The stream turns to the north in front of the hill seen in the background (Jackals Berg). The dense bush which clothes the banks is identical in composition with that found 50 miles further up-stream*; in fact, it is probably very uniform for some hundreds of miles from the mouth. *Salix capensis* and *Zizyphus mucronata*, which are dominant species at Bethany Drift and Raman's Drift, are equally conspicuous at the point where the river is crossed by the main line to Kimberley.

* Pearson. *The Geographical Journal*, 1910, p. 494.

† Paterson. *A Narrative of Four Journeys*, &c. London, 1779.

‡ Old plants of both are growing in the Municipal Gardens at Cape Town.

** *Gardeners' Chronicle*, December, 1909, p. 370.

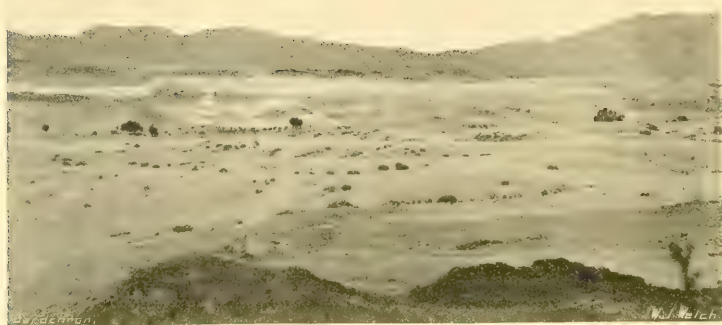


FIG. 97.—NEAR BETHANY DRIFT.

The Orange River is beyond the limit of the picture on the right. A few trees of the Eastard Flony (*Euclea Pseudoebenus*) are seen in a tributary stream bed. The small round bushes are mostly *Euphorbia*.

which become infected, and constitute an easy means of spreading the disease if used as "sets."

The disease can be transferred to other plants, e.g., Turnip and Parsnip, and some farmers are inclined to connect rotting of Turnips with that of Potatoes. There is a possibility that bacterial diseases of these plants may also be due to this organism.

The damage due to this disease is not easy to estimate. Part of the loss occurs in the field, affected plants producing no tubers, or these are diseased, and rot after being lifted. The loss is probably always greatest after the Potatoes have been lifted and stored in clamps, and it has been determined experimentally that healthy, unwounded tubers can be infected by contact. So far, it has not been found possible to isolate the organism from the soil, or to prove that this is the source of infection, nor has any means of sterilising "seed" Potatoes by heat proved effectual. Further experiments in this direction are in progress.

(To be continued.)

of sand, sometimes of particles too large to be called sand, and make life a burden. Exposed surfaces are swept bare and polished. On the lee side of every bush or protruding stone there lies a long and dwindling ridge of sand recalling a miniature snowdrift.

In seeking to account for the poverty of the vegetation, we must allow to these winds no small degree of importance. Another factor doubtless owes its origin to the relatively low elevation of the surrounding hills. Along the lower course of the river there are few sufficiently high to condense the little moisture present in the air, and consequently, outside the spheres of influence of such great masses as the Khamiesberg on the south and the Karasberg on

* Being some notes on the Percy Sladen Memorial Expedition to the Orange River, 1910-11. This expedition was assisted by a grant from the Royal Society.

† G. Thompson. *Travels and Adventures in Southern Africa*. London: 1827. (The Orange River was formerly known as the "Gariep.")

‡ The river is not tidal at Bethany Drift. Its level, however, fluctuates with the rainfall in the Transvaal and the Drakensberg.

It was pointed out in the first of these articles that, although the summer-flowering season increases in importance from south to north, yet throughout Namaqualand the great bulk of the species flower in the spring months.

These scattered notes have been concerned with the summer vegetation, but the few words in which the late Dr. Bolus so vividly clothes a general impression of the spring flowers in the neighbourhood of Annenus may fitly be quoted: "I was amazed on visiting that desert country after the rains of June to July, 1883, to see tracts, hundreds of acres in extent, covered with sheets of living fire or glowing purple, visible from several miles distance, caused by the beautiful Compositeæ in flower, and nothing is more singular than to see this luxuriance intermingled with the black or white branches of dead shrubs killed by previous droughts, standing like ghostly intruders on a scene of merriment and joy. These charming displays pass away all too rapidly, and in a month or two little that is beautiful remains."††

But whether in January or September, whether the vegetation is dormant or active, Namaqualand offers a rich field for botanical investigation.

so, we shall perhaps be forced to see in the present vegetation of Namaqualand the results of a long series of climatic changes which are still in progress, and which may, in the long run, profoundly affect the economic future of Western South Africa—and the more speedily if the ravages of the goat and the veldt-fire remain unchecked. H. H. W. P.

THE PRIMULAS OF THE EUROPEAN ALPS.

(Continued from p. 164.)

HYBRIDS.—III.

P. hirsuta × *P. viscosa* = *P. Berninae* (Kerner: *P. Salisii*, of Brügger).—A very handsome and recognisable cross, producing secondary hybrids also. It is generically intermediate, smaller in habit, but otherwise resembling *P. viscosa*, though with flowers fewer, larger, wider, approaching those of *P. hirsuta*, but with the typical purplish and powdered throat of *P. viscosa*. *P. Berninae* is not uncommon with its parents in the Bernina Chain and the Bergamask Alps.

marginata. The influence of this latter I suspect in the plant in question, only because of the outstanding, almost rectangular dentation of the leaves (which, however, are soft, glandular, totally efarinose, and emarginate), and the shape and colour of the flowers, which are fewer in the umbel, larger, and wider than those of *P. viscosa* in any form, and of a brilliant blue-lavender colour, such as certainly suggests the characteristic note of *P. marginata*.

P. farinosa × *P. marginata* = *P. Bonatii* (Petitmengin).—This wild and paradoxical cross was described and reported by the late M. Petitmengin as occurring occasionally on the northern side of the Col de la Croix Range in the Cottian Alps. The plant, I think, is otherwise unknown. There is hardly any parallel to this alliance between species so remote.

P. hirsuta × *P. integrifolia* = *P. Heeri* (Brügger). It is necessary to discard the following names: *P. Davosiana*, *P. assimilis*, *P. Lageri*, *P. Thomasiensis*, *P. incerta*, *P. globulariæfolia*, *P. montafoniensis*, and *P. Trisannæ*.—This, in type, is a truly magnificent little plant, intermediate, and yet very distinct. Its flowers are much larger and more brilliant than those of *P. hirsuta*, carried on short stems, above light-green leaves, usually denticulate, more or less lucent, and yet hairy. The leaves alone would differentiate it from the smooth, entire-leaved *P. integrifolia*; the much larger flowers, with (usually) coloured throat and tube, from *P. hirsuta*. This lovely (but sterile?) hybrid occurs in the Bernina Chain and in the Pyrenees (the only Pyrenean Primulas being *P. viscosa*, *P. integrifolia*, *P. hirsuta*, and the universal *P. farinosa*).

P. integrifolia × *P. viscosa* = *P. Duvignati* (Lager) differs from *P. integrifolia* in its narrower, denticulate leaves, more or less pilose, in taller flower-scapes, richer in flowers, on longer pedicels, often nodding, powdered, but not villous at the throat; from *P. viscosa* in larger, fewer flowers, longer bracts, bigger calyx, smaller capsule. This cross approaches, as usual, to its mother plant, *P. integrifolia*. Its flowers are of a heavy red-violet, and it dwells with its progenitors in the Bernina Chain, being not uncommon.

P. viscosa × *P. integrifolia* = *P. Martiana* (Moritz: *P. Muretii* of Charpentier).—This, the reverse cross, exactly repeats the characters of the last, but the other way round, being larger in habit, rather smaller in flower, and closer in general resemblance to *P. viscosa*. It occupies, naturally, the same districts as its parents and *P. Duvignati*.

(There are, no doubt, reverse crosses to many, if not all, of the other hybrids too. I believe myself to have seen *P. viscosa* × *P. pedemontana*, for instance; but I feel it a pity to multiply names unduly. Usually, some such system as I suggested earlier might easily prove quite sufficient to cover the crosses going each way between two species.)

P. glaucescens × *P. hirsuta* is a cross that has no name, and has only once been found (in the Val d'Ambra), and then only in one solitary fruiting stem. A doubtful hybrid.

P. tyrolensis × *P. Waltheriana* = *P. Venzoi* (Huter).—This plant is not uncommon in gardens, where it often figures under the name of *P. cridaliensis*. (Other names to be forgotten are *P. venzoides*, *P. micrantha*, *P. adulterina*, and *P. valmenonæ*.) It is a taller plant than tiny *P. tyrolensis*, with more or less glaucous, glossy leaves, fairly stiff, elliptic-obovate, usually entire, with a barely perceptible margin of membrane, and a flower-scape, often of purplish tone, carrying one to three rosy-lilac flowers. *P. Wulfeniana*, on the other hand, is bigger in all parts, and has broadly margined leaves, intensely stiff, glaucous, glossy, glabrous, and entire. Alp Valmenon, in the Venetian Range.

P. Clusiana × *P. minima* = *P. intermedia* (Portenschlag: *P. floerkeana* of Salzer; *P.*



FIG. 98.—ALOE DICHOTOMA IN A RAVINE NEAR DAUNARIS, ABOUT 15 MILES SOUTH OF BETHANY DRIFT.

It is a field difficult indeed to penetrate, and many of its botanical problems are extremely complex, but it would not be easy to find a region possessing greater attractions for a botanist. Of the many questions that force themselves upon his attention none is perhaps more prominent than those concerned with the distribution of species—the wealth—and the poverty—of the flora; the extremely limited range of many of the species, the extraordinarily extensive range of others; the remarkable power which many possess of remaining dormant through long periods; the peculiar relations between the Cape flora of the mountain tops and the very different forms of vegetation prevailing at lower elevations; the place of origin of the latter; the reasons for the retreat of the former. It is difficult to avoid the conviction that Namaqualand is the arena in which is being fought out the penultimate battle between the ancient vegetation of the mountainous coast belt of South and Southwest Africa, and a horde of more xerophytic forms advancing from the north and east. If

P. pedemontana × *P. viscosa* has hitherto, so far as I am aware, no name. I will think of it as *P. Bowlesii*, remembering in whose company I first saw it on the Little Mont Cenis. It has almost the habit of *P. pedemontana*, but is much more glandular, odorless, limper in the leaf, and weaker in russet fur. Its flowers are longer in the tube than those of *P. pedemontana*, and of almost *P. viscosa*'s rich, vinous violet, but larger and much more open, though with *P. viscosa*'s typical powdered throat and purplish tube. It occurs, but not frequently, among its parents, and, of course, resembles *P. Berninae*.

P. viscosa × *P. ænensis* = *P. Kolbiana* (Widmer).—A hybrid barely known or described, from the Val Seriana.

P. viscosa × *P. marginata*.—This, if a genuine cross, is one of the very rare instances of hybridisation between two species of the same subsection. I give it, however, no name, as the plant requires further observation. It is, in size and habit, pure *P. viscosa*, and occurs among *P. viscosa* on the Col de Clapier. Near at hand, in the neighbourhood, lives also *P.*

†† H. H. Bolus, *The Flora of South Africa*, offered to the Botanical Society of the Cape of Good Hope, Cape Town, 1886.

Portenschlagii of Beck; *P. Wettsteinii* of Wiemann; *P. fallax*, *P. monticola*, *P. spinulosa* of Gussmus).—A very beautiful and variable little hybrid, much smaller in habit than *P. Clusiana*, but with the same enormous flowers, one to three on the short scape. It also differs from its mother in having denticulate leaves. It is much larger in habit than *P. minima*, and has no marginal band of membrane. It is said to be sterile (though this I certainly contradict), and it occurs freely with its parents on the limestone ranges round Vienna.

P. minima × *P. Wulfeniana* (*P. Deschmannii*, *P. Kankeriana*, *P. mutata*) divides into two named varieties, both differing from *P. Wulfeniana* in having serrate leaves, and from *P. minima* in larger habit. *P. × serratifolia* (Widmer = *P. serrata*, Gussmus) is known in gardens; its oblong-uneate little leaves have seven to nine teeth; it has no flower-scape and the briefest of pedicels. (*Carinthia*.) *P. × vohichensis* (Widmer) has a short scape, and its oblong leaves are sometimes entire, but usually have one to three teeth. (*Carinthia*.)

P. minima × *P. spectabilis* (*P. fratisensis*, *P. Fumana*, *P. Valbone*, *P. varians*) is another hybrid needlessly split up under two names:—*P. × Dumoulinii* (Stein), a little plant, one-flowered, with scape shorter than the leaves, which are wedge-shaped, barely truncate at the end, and serrate-dentate. Nearest to *P. minima*. (*Southern Judicaria*.) *P. × Facchini* (Pax and Schott, = *P. floerkeana* of Facchini; *P. magiasonica* of Porta) is bigger than the last, with two (instead of one) immense flowers to a taller scape, and ovate-rhomboid leaves, denticulated from their middle to the end. Same range as the last, but less rare. *Reginald Farrer*.

(To be continued.)

EUROPEAN ELMS.*

THERE are in all Europe four species of Elm trees that can be readily distinguished. The confusion in regard to these trees goes back at least to the time of Linnaeus, who considered that all the European Elms belonged to one species, to which he gave the name of *campestris*. This name, however, cannot be used for any one of the four species united by Linnaeus, as it is impossible to know which of the four he considered best deserving of the name. *Ulmus campestris*, therefore, as a name must be given up. This is unfortunate, for the name is of old usage, and is found in all books about trees.

Two Elm trees grow naturally and spontaneously in Great Britain, *Ulmus glabra* and *Ulmus nitens*, and these names, which are the oldest which have been applied to these trees, further complicate the situation. *Ulmus glabra*, which is often called the Scotch Elm, is a medium-sized, round-headed tree, with stout, hairy branchlets, and large, short-stalked leaves, often three-lobed at the apex, and very rough, especially on the upper side, from the short, rigid hairs which cover them. This tree can easily be distinguished also by the fruit in which the seed is in the centre of the surrounding wing. It is a native of Scotland and northern England, and extends eastward to the Caucasus, eastern Siberia, and Japan, where it is represented by a distinct form, the variety *heterophylla*. To the Scotch Elm several names have been given. The oldest and the one, therefore, which should be adopted, is *Ulmus glabra*. This is an unfortunate name, for the leaves are rougher than those of any other Elm tree, and *Ulmus scabra* and *Ulmus montana*, which were given to it later, are more appropriate names. The name *glabra*, however, as the author who first used it states, was given to this tree because the branches are smooth, that is, because they do not produce the corky wings which are developed on the branches of many varieties of Elm trees. The Scotch Elm

has been sometimes planted in the eastern United States, but it is not a desirable tree. It does not produce suckers like many other Old World Elms, but it bears great quantities of seeds, which are freely blown about, and, growing rapidly, produce innumerable plants, which may become troublesome weeds. In recent years, in the neighbourhood of Boston, the leaves of this tree have been destroyed in early summer by the larvæ of a leaf-mining insect, which works entirely under the epidermis of the leaf, and cannot, therefore, be reached by an external application of poison. This insect is a good botanist, and, selecting always this Elm, never feeds on any of the other species. Several varieties of the Scotch Elm are commonly cultivated. The best known, perhaps, is the Camperdown Elm, the variety *Camperdownii*. This is the tree with pendulous branches which is often planted in suburban gardens, where, as the branches grow regularly round the top of the stem and reach the ground, it makes a natural arbor. The variety *horizontalis*, with irregularly spreading and more or less drooping branches, is a handsomer tree, but is less often seen in the United

by American cultivators of trees. There are several forms of this tree in cultivation. Perhaps the one most often seen is the variety in which the leaves are blotched with white, variety *variegata*, also called *argenteo-variegata*. The Cornish Elm, with erect-growing branches, forming a narrow, irregular head, is a variety of this tree. There is a variety with purple leaves, var. *purpurea*, and sometimes called var. *corylifolia purpurea*; and there is an interesting form found a few years ago in Persia, the variety *umbraculifera*, with short branches, forming a compact, nearly globose head.

The third European species, *Ulmus laevis*, is found only in the northern part of the continent, and is the commonest Elm of Scandinavia and northern Russia. This is a noble tree, which sometimes grows to the height of 100 feet, and is hardly distinguishable in habit and foliage from the American Elm, although quite different from our tree in the long stems on which the flowers and fruit hang. Like the American Elm, the trunk and large branches are often clothed with small, pendulous branches. This tree is probably extremely rare in American collections,



FIG. 99.—THE ORANGE RIVER BETWEEN BETHANY AND SKALES DRIFTS, LOOKING DOWN-STREAM.

An overhanging tree of *Salix capensis* on the left; this species is the most abundant constituent of the *Laub* forming the banks. The hill, "Jackalsberg," in the background, rises to 1,100 feet above sea-level.

(See p. 200.)

States. The Exeter Elm is a variety of this tree, var. *stricta*, with erect branches, which forms a narrow, pyramidal head, and is more curious than ornamental. The variety *macrophylla* is a form with exceptionally large leaves, and the variety *myrtifolia* has purplish leaves. The variety *superba*, which is, perhaps, a hybrid, is a large tree, with a broad head of pendulous branches, and large, rather lustrous leaves, and is the handsomest of all the forms of the Scotch Elm.

The second species which grows in Great Britain, *Ulmus nitens*, is a taller tree, with slender, hairless branches, sometimes furnished with corky wings, longer-stalked and smaller, smooth, shining leaves, without hairs, except occasionally on the under surface of the midribs, and fruit in which the seed is near the upper edge of the encircling wing. This tree produces suckers freely. It is a widely-distributed tree, extending to the Caucasus and Siberia. It is not often found in American collections, and it is hardly recognised

although it might well be more often planted in the northern states. It is often called *Ulmus pedunculata* and *Ulmus effusa*.

The fourth European species merged by Linnaeus in his *Ulmus campestris* is a tree from central and northern Europe, for which the oldest name is probably *Ulmus foliacea*. This is a tall tree, with slender branches, often developing corky wings, small, smooth, or rough leaves, and fruit in which the seed is near the middle of the wing or between the middle and the apex. This tree is not generally recognised in American collections, but it is usually *Ulmus foliacea* which comes to this country when seedling Elms, under the name of *Ulmus campestris*, are imported from French or German nurseries. The curious, dwarfed, small-leaved Elm called *Ulmus viminalis* is evidently a seedling variety of this species.

The Huntington Elm, *Ulmus vegeta*, is now believed to be a hybrid between *Ulmus glabra* and *Ulmus montana*, the two species which grow

* Reprinted from *Illustrations of European Trees* (No. 11), Arnold Arboretum, Jamaica Plain, Massachusetts, U.S.A.

native to England, where the Huntington Elm originated. It is a large tree, with a short trunk, and numerous large branches, spreading at narrow angles, and in this country it grows more rapidly than any other Elm tree. It should be often planted here. *Ulmus major*, which is supposed to be a hybrid of the same parentage as *Ulmus vegeta*, is another noble tree, which 100 or 150 years ago was much planted in the suburbs of London. There is another Elm in Europe which is, perhaps, a hybrid, but its parentage is uncertain, and it appears to be without an authentic name. This is the Elm which is planted in all the Dutch cities, and, judging by its appearance, it is one of the best of all street trees. There are large trees in Holland, in the Champs Elysées in Paris, and at Versailles, so if it is a hybrid it is not of recent date.

When in Massachusetts we speak of *Ulmus campestris*, we do not refer to any of the trees already mentioned in this *Bulletin*, but to the so-called Elm of the roadsides, avenues, and hedges in southern England. The origin of this tree is obscure. Growing spontaneously, it is known only in England; it never ripens seeds, and it increases by suckers, which are produced in profusion. Some authors have thought that it might be a hybrid; by others it has been suggested that it was brought from Italy to Britain by the Romans. It is a splendid, tall, long-lived tree, with a massive trunk and erect or spreading branches. This is a tree which has grown to a larger size in Boston and its suburbs than any other planted tree. Major Paddock established a nursery of these trees at Milton, in the 18th century, and the Paddock Elms, once the glory of Tremont Street, and the so-called English Elm trees, which once stood on Boston Common, are of this form. The oldest name for this tree is *Ulmus surculosa*. All these Elms, and many other species, hybrids and varieties in small individuals, can be seen on the north-eastern slope of Bussey Hill. *Ulmus surculosa* is common near Boston. *Ulmus glabra* and some of its varieties are not uncommon in this neighbourhood, and occasionally plants of *Ulmus nitens* and *Ulmus florea* can be found in eastern Massachusetts. As these last are usually raised from seeds in European nurseries, the imported seedling plants show great variation in habit, foliage, and in the presence and absence of wings on the branchlets.

PLANT NOTE.

HIBISCUS.

THERE was a time when the members of the genus *Hibiscus* were more generally employed for garden decoration than is the case to-day, when, indeed, there were but few collections of stove plants which did not contain one or more of the many varieties of *Hibiscus rosa-sinensis*. One of the best and most easily grown for greenhouse decoration is *H. Manihot*, a tender perennial, most successfully grown and flowered as an annual, plants from an early sowing growing 6 feet high the first season. The flowers are large, when fully expanded being almost flat and 6 inches in diameter, cream-coloured, shading to yellow at the base of the petals where each is splashed with black, the whole, with the conspicuous staminal column, being very effective. The flowers are produced solitary from the axils of the leaves. They are short-lived, lasting but for one day; a batch of plants will, however, produce fresh flowers daily and over a long period. Their cultural requirements are simple; the seeds should be sown in a brisk heat early in the year, and the seedlings potted on and hardened as growth proceeds, their final potting being into pots 9 inches in diameter, at which stage they may be accommodated in an unheated house. They are gross feeders, and when established should be fed regularly. Seeds are produced freely, each capsule containing 60 seeds or more. *Fred. W. Jeffery, Woodland Gardens, Renfrewshire.*

THE WEATHER AND AQUATIC PLANTS.

As might be expected, the prolonged tropical sunshine has suited the out-door Waterlilies. At the early summer fortnightly exhibitions of the Royal Horticultural Society, and at the Olympia Show, several trade growers exhibited gigantic flowers of various *Nymphaeas* bearing large, fleshy petals of rich colours. Whenever these plants have received the little attention they require, there has been a rich harvest of delightful flowers, which have remained open nearly the whole day long. When making comparisons between the blooms seen at flower shows and those which are growing in ponds, or other places, due allowance must be made for surroundings. A number of cut flowers floating in a comparatively small receptacle of water quite near to the observer, appear to greater advantage than when the flowers are growing in a pond or tank, and are at the least several feet away from the eye. Visitors to flower shows who overlook this point are apt to be dissatisfied with their own flowers.

Usually the *Nymphaeas* throw up an undue proportion of leaves, which, to enable the flowers to be properly seen, have to be frequently thinned out. But this year much of this labour has been obviated and, due to the great heat, the flowers have been, in many cases, raised well above the surface of the water. But the closely related *Nuphars* do not seem to have benefited so much from the great heat. In many instances these plants have completed their blossoming at an unusually early date. For planting away from the banks of large ponds the *Nuphars* are in several respects preferable to the common *Nymphaea* (*N. alba*). The orange-yellow flowers are brighter—white is "cold," and less attractive when surrounded by much water or greenery;—the leaves of the *Nuphar*, which are much handsomer, stand well out of the water, giving it a well-furnished appearance, and when they decay, do not look so unightly as does the decaying foliage of the *Nymphaeas*.

During the middle portions of the tropical days in midsummer the heat was plainly too much for the pretty yellow-flowered *Limnanthemum peltatum*, for, whilst the *Nymphaeas* rioted and revelled in the great heat, the more delicate petals of this plant were greatly distressed. It was interesting to notice how they gradually recovered as the evening approached. In a temperature up to 83°, the *Limnanthemum* (better known perhaps as *Villarsia*) was perfectly happy, but beyond this point the flowers gradually flagged.

Pontederia cordata is still wonderfully handsome. There is so much body in the spikes of rich blue flowers; one cannot think of any other hardy blue flower which surpasses it in depth of colour. The dense spikes, and exceedingly rich blue colour, are somewhat reminiscent of the compact shrubby *Veronica*, as it grows and blooms in the western counties. A common mistake made with the *Limnanthemum* is that of planting the roots too deeply. Provided they are covered with sufficient water to escape being frozen in the winter, the nearer they are to the surface the better.

The Arrow-heads (*Sagittaria*) are now nearly over; somehow we expect a rather more showy flower from such fine foliage. The flowering Rush (*Butomus umbellatus*) has had a fine season, the plants have pushed up many large spikes of lovely pink flowers, and some yet remain. This is another aquatic which should not be placed in deep water. The Amphibious Willow Grass (*Polygonum amphibium*) is bearing numerous short spikes of red-tinted flowers. Like some other similar plants, it is interesting on account of the distinct foliage it produces when growing on drier ground. The native purple *Leucostreife* is known to almost everyone; a pretty little companion plant is *Ammania japonica*, which might well be described as being a half-sized *Lythrum Salicaria*, its erect, purple spikes being only from 18 inches to 2 feet high. *Tenarium*

Scordium is another uncommon water-side plant. It does not possess any showy attributes, but is sufficiently pretty and distinct as to be well worth planting in the shallow margin. *Senecio paludosus*, a strange-looking groundsel, is useful for a similar purpose. It has an erect, compact habit, and grows quite 4 feet high. Before the flowers open *Discopleura Nuttallii* possesses the richest green foliage of any of the water-plants now in season. The plant grows about 18 inches high, and compact umbels of small, white flowers surmount the finely-divided, dark-green leaves.

The Giant Horsetail, *Equisetum maximum*, although a native plant, and a pest in some places, is deserving of culture by the water-side. When well-grown the curiously-whorled stalks become fully 5 feet high, and supply a very distinct form of foliage. When under cultivation this plant is often allowed to become a dense mass of shoots, in which condition it is not so ornamental as when each growth stands clear of its fellows. *Hippurus vulgaris*, the Mare's-tail, is more ornamental than the *Equisetums*. The growths are not nearly so tall, but the pretty little feathery spikes of rich, dark-green are very attractive. *A. C. Bartlett.*

TREES AND SHRUBS.

MAGNOLIA MACROPHYLLA.

It is but seldom that a really good specimen of this noble *Magnolia* is seen, for although it is suitable for outdoor culture in the southern and western counties, it does not appear to have been planted in many gardens. One of the finest known trees is growing in the gardens at Claremont, whilst for many years a good-sized tree flowered annually in Messrs. Veitch's nursery at Combe Wood. Considerable information about the tree in its natural habitat is to be found in Professor Sargent's *Silva of North America*. It is a native of the South United States, but does not appear to be a common tree there. Its maximum dimensions are attained in a deep rich soil in sheltered valleys in North Alabama, where it is found from 30 feet to 50 feet in height, with a trunk diameter up to 18 inches or 20 inches. The oblong leaves grow to a remarkable size, being sometimes 2½ feet long and 9 inches or 10 inches in width. The upper surface is bright green and glabrous, whilst the under surface is glaucous and pubescent. The creamy-white flowers appear in June and July. They are 9 inches to 12 inches across when fully expanded, and like the flowers of many of the other *Magnolias*, very fragrant. When planting this species a sheltered position in rich, well-drained ground should be chosen; if the ground is not naturally peaty, a little peat should be added to the soil.

ILEX FARGESII.

ALTHOUGH this remarkable Holly has been known from herbarium specimens for a considerable period, it is only of late years that living plants have been cultivated in English gardens. It is one of the many plants introduced by Mr. E. H. Wilson from Western China when plant collecting for Messrs. J. Veitch & Sons. The plant attains a maximum height in China of 15 feet; whether specimens will grow so high in this country remains to be seen. At present it is inclined to grow in width rather than in height, the branches being long, thin, and clothed with evergreen leaves measuring 3 inches to 4 inches in length and ½ inch to ¾ inch in width. They are dark green above, and lighter on the under surface. The margins are armed with a few saw-like teeth, which are not, however, spines. From dried specimens the fruits are seen in small clusters, arising from the leaf axils; when ripe they are red in colour. *I. Fargesii* is perfectly hardy and likely to thrive under conditions suitable to the common Holly. *W. Dallimore.*



The Week's Work.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

TOMATOS.—The foliage should be reduced and all side shoots removed from Tomatos out-of-doors in order to hasten the ripening of the crop. Give frequent applications of liquid manure to assist the plants to mature their fruit. Tomato plants in pots intended for fruiting in early winter should have several bunches of fruit set at this date, and must be removed to glasshouse where fresh air can be admitted both night and day. A little extra growth should be allowed to remain on Tomato plants during autumn and winter in order to keep the roots in an active, healthy condition. Plants intended for furnishing the latest supplies of fruits should be ready for their final potting; make every effort to secure a full set of fruits by the end of October. Employ 8-inch pots and light, turfy loam with a sprinkling of rough sand to keep the soil in a porous condition. Fresh air should be admitted freely both night and day until sufficient fruits are set.

SPRING CABBAGES.—Plants of the first sowing will be ready for planting permanently. The ground for this crop should be in a good condition, but it is not advisable to apply fresh manure at the time of planting; better results will be obtained by planting on ground which has been heavily manured for a previous crop. The soil should be made moderately firm, and the plants put out in drills drawn 15 inches apart, allowing a distance of 1 foot between the plants in the row. Give liberal supplies of clear water at the time of planting to settle the soil about the roots. The principal plantation of Spring Cabbages may be made a fortnight later.

FRENCH BEANS.—Make a sowing of French Beans in pots weekly, to furnish plants for providing a supply of pods during November. Winter vegetables in the open will be scarce this season, therefore every effort should be made to grow as many Beans and other tender vegetables under glass as possible. Pots having a diameter of 8 inches should be used for this sowing, but, as the season advances receptacles a size smaller may be used with advantage. The compost may consist of turfy loam mixed with a small quantity of well decomposed manure. Fill the pots to within 2 inches of the rims and make the soil moderately firm; six seeds may be placed in each pot and covered one inch deep with fine soil. The pots may be placed in a cool glass-house until the seedlings are well above the surface, when they should be removed to a position within 18 inches of the roof-glass to prevent the plants becoming drawn. Admit air freely and give liberal supplies of water at the roots, for if the soil is allowed to become dry the chances of a remunerative crop will be spoiled. As they develop, the plants will require support, which may be afforded by twigs inserted near the rim of the pot. Give frequent applications of liquid manure and syringe the foliage twice daily during bright weather. *Ne Plus Ultra* and *The Belfast* are suitable varieties for this sowing; the latter is of recent introduction and is largely cultivated at Frogmore to furnish pods for cooking whole.

MUSHROOMS.—Continue to collect horse droppings for providing successional beds, placing the manure in an open shed, where it may be turned frequently to prevent it becoming sour. Beds spawned at this date should furnish Mushrooms in about six or seven weeks. The bed should be at least 15 inches deep after the manure has been rammed tightly, as this quantity of manure is necessary to maintain a temperature of 80° for some time after the bed has been spawned. When danger from overheating is past, the surface of the bed should be covered with a one-inch layer of fine, new loam, which should be beaten as firmly as possible with the back of a spade. Finally, a light covering of straw should be spread over the bed to prevent evaporation of moisture. Beds that were spawned a month ago

should be examined and, if the surface is found to be dry, given a gentle watering with soft water. Syringe the walls and floor of the house frequently, so long as the weather remains fine and dry.

CELERY.—The main crop of Celery will now require earthing-up. A thorough soaking of water should be applied to the roots before the soil is placed in position. All side shoots and small leaves should be removed before the plants are tied with some soft material, which must be removed after the earthing-up has been done. The soil should be broken as finely as possible, as the work proceeds, and it must not be allowed to fall into the hearts of the plants. It is of great importance that the plants of successional batches of Celery do not suffer from want of water at the roots or the heads will be inferior.

HOEING.—The soil where the crops are growing should be hoed as frequently as possible whilst the dry weather continues, in order to destroy small weeds before the autumn rains occur. Asparagus beds should be hoed carefully and the main growths secured to wires or sticks before high winds occur. Asparagus plants intended for forcing in pits will be benefited by a soaking of manure water at the roots before the foliage commences to turn yellow.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunterbury House, Acton, Middlesex.

THE GREENHOUSE.—The autumn sales afford a good opportunity for replenishing the stock of greenhouse plants with young, healthy specimens. Excellent plants of *Bouvardias* may be purchased at about this date, and, in all probability, the plants purchased will be showing their flowers. If the blooms are not required for a few weeks to come, the early inflorescences should be pinched off, and, if in 4½-inch pots, the plants may be shifted, with advantage, into receptacles a size larger. By growing them in a warm pit where the atmosphere is kept moist, and placing them near to the roof-glass, fresh growth will soon develop that will blossom at a season when flowers are scarce. *Cytisus racemosus* is another plant that may be treated in this manner, there being plenty of time before the dull season arrives for the plants to recover from root disturbance. But whatever subject is potted just now, guard against over-potting, and, in all cases, pay special attention to the watering. In the case of hard-wooded plants, such as *Heaths*, *Epacris*, *Boronia*, *Acacias*, and *Rhododendron indicum* (Indian *Azaleas*), potting will not be necessary; their chief requirement just now is a proper supply of water, for if the soil is allowed to become dry at the roots, they will show the effects later. If *Erica hymenalis* is allowed to become dry, the flower-buds will turn yellow, and, perhaps, drop, or if they are advanced beyond the bud stage they will be crippled. Any plants of the kinds I have named showing a disposition to grow freely should have the tips of the leading shoots pulled out just below the flower-buds. They may all be allowed to remain out-of-doors in gardens in southern and midland counties for a few weeks, but in the north it will be advisable to place them in pits or in well-ventilated houses, where they need not be shaded. I prefer to house them in pits, standing the pots on a bed of ashes.

POT ROSES.—The stock of pot Roses intended for forcing should be overhauled, and, if necessary, fresh plants added. It is advisable to renew a few of the plants every season, as some are sure to have deteriorated. The season has suited pot Roses, and the new plants should be secured without delay. I have always obtained the best results with plants that were potted in September, whilst the foliage was still on them; early potting allows plenty of time for fresh roots to form before winter sets in. For potting, select the best turfy loam obtainable, and mix with it some well-decayed manure, or, failing that, bonemeal. Road scrapings are also suitable for adding to the soil, but be careful they are not obtained from roads treated with any kind of tar composition. Reduce the old mass of soil, taking care not to damage the

roots. Do not use larger pots, unless the vigour of the plant calls for increased root room. Many persons do not consider it desirable to repot Roses soon after they have been received from the nursery; if the soil is in a proper condition and the general condition of the plants satisfactory it is not necessary. After the plants have been potted, they should be plunged in a bed of ashes to the rims of the pots and exposed to full sunshine. One good watering after the potting is finished will afford sufficient moisture for some considerable time to come.

ROSES IN BORDERS.—Plants that have been allowed to grow freely should now be thinned carefully, removing the weaker growths. Great care should be taken to keep the plants dormant, and this condition will be best secured by keeping the roots moderately dry and the glass-house as cool as possible. The syringe, however, must be used freely to prevent red spider. Whilst the houses are fairly empty of other plants, the borders may be seen to and either renewed or enriched, as is necessary. Preparations may also be made for planting later in the season, the soil being now in the best condition for this work.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

PEACHES.—When the fruits of late varieties of Peaches have been gathered, it may be necessary, if the shoots are very numerous, to remove the old fruiting branches, so that growth of the current season may become matured. The earliest opportunity should also be taken of giving the foliage a vigorous syringing with water to destroy any red spider that may be present. Give the borders a soaking of water, and, if the trees have borne a large crop and show signs of weakness in consequence, liquid manure may be applied. Early trees should also be syringed to keep the foliage healthy as long as it remains on the branches. Ventilate the house freely both day and night. When pot plants of various subjects are temporarily placed in early Peach houses, do not be led to remove any of the foliage from the Peach trees to allow more light to reach the pot plants. Any root-pruning that may be considered necessary in the case of established trees may be done before the foliage has disappeared. A trench should be made at a distance of about 3 feet from the stem of the tree, taking care to preserve all fibrous roots. The coarse roots may be severed with a sharp knife. Take out the soil as far down as the drainage materials, placing whole turves over this and filling in with the compost recommended in a previous calendar; avoid using too much manure. Make the soil thoroughly firm, after carefully placing the roots in position in some of the finer of the compost. When all is finished give a good watering. Syringe the trees, and admit an abundance of air whenever the weather is favourable.

TOMATOS.—The season has suited Tomatos, and the plants still bear a large number of unripened fruits. These should be removed as soon as they show signs of colouring and allowed to ripen on a warm shelf in a greenhouse. Some of the leaves may be removed to allow the sunlight to reach the fruits. A fresh batch of plants may now be planted, selecting those that have been growing in a cool position out-of-doors, and have commenced to set their fruits. If the plants are to be transferred from the pots and planted out in a shallow bed, as much as possible of the bare stem should be covered with soil, placing the plant in a slanting direction to allow of this being done. We have just potted a batch of Tomatos into 9-inch pots for winter fruiting. They stand in a warm house, where they will be allowed to remain for a few days to encourage them to root freely in the new compost. Afterwards they will be gradually inured to cooler and more airy conditions.

PERPETUAL-FRUITING STRAWBERRIES.—As the berries of perpetual-fruited Strawberries commence to swell, assist the plants with stimulants. Afford plenty of fresh air, and see that the plants do not suffer for want of water. The fruits are a pleasing addition to the dessert at this season.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

CYPRIPEDIUM.—The late-autumn and winter-flowering *Cypripediums* all blossom with remarkable freedom, giving them a special value during the dull season of the year. No other kind of Orchid provides such a beautiful display during that period, and the flowers last for a long time when cut. The cooler the plants can be grown without suffering injury the better they succeed, especially *C. insignis* and many of its hybrids. The flower-buds are now prominent in the new growths of many of the plants, and, with the shortening days, these Orchids should be fully exposed to the light, shading them only when strong sunshine prevails. Plenty of fresh air should be admitted by the top and bottom ventilators whenever the conditions are favourable, leaving the apertures open a little at night time in fine weather. By this treatment the leaves become sturdy and short, with much substance, and the blooms develop fine quality. Continue to give liberal supplies of water at the roots; large, root-bound specimens will be much benefited by occasional applications of weak liquid manure until the flowers commence to expand; after this stage clear water only should be given.

SEEDLINGS.—The present is a suitable time to report seedling *Cypripediums* that have become root-bound, the cool nights and general atmospheric conditions being favourable to the plants. Any specimens approaching a flowering size should be given a more substantial compost than hitherto by adding more fibrous loam to the potting mixture. The pots must be well drained. For the rooting medium use good fibrous loam one-third, peat or Osmund-fibre one third, and Oak leaves and Sphagnum-moss in equal parts one-third. Small seedlings may also be removed from the seed-beds, either pricking them out separately or placing several together in a small pot. For these the rooting material should consist of equal parts of peat, Sphagnum-moss, Oak leaves and loam-fibre, from which most of the finer particles have been shaken. Place the soil moderately firm in the pots, and to encourage the small seedlings to take root hold quickly and without check they must be given a warm, moist and shady position, where the rooting material will keep moist with infrequent waterings, affording occasional sprayings overhead.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

EARLY PLANTING.—The ground should shortly be prepared for the planting of fruit trees, as many of the earlier kinds of Apples and Pears will be ready for transplanting by the end of the present month, or the early part of October. A distinct advantage is gained by planting early in autumn; the roots, if supplied with plenty of moisture, develop fresh fibres, and the tree becomes so well established before winter that the effects of the disturbance are scarcely noticeable in spring. The earlier varieties of Peach and Plum may also be planted, and, if the work is done carefully, a crop is almost certain to be forthcoming the following season; whilst trees that require root-pruning may be attended to at once. Aspect is a great factor in successful fruit culture. In some localities a certain variety may require a south aspect, whilst in other districts the same sort may do equally as well in either an eastern or western exposure. Never plant tender varieties in cold, exposed situations, where the sun's warmth is not felt during the greater part of the year. Trees that blossom early in the spring should not be planted in an east aspect, as, in such cases, the blossom will be almost sure to be injured or destroyed by cold winds and frosts. Apples, Morello and May Duke Cherries, and late-blooming varieties of Plums, may be planted facing east. Pears, Apples, Cherries, and Plums generally prefer a west aspect; some of the choicer varieties of early Pears and Plums a south aspect; Peaches, Nectarines, Figs, Vines, and Apricots sheltered positions, having a south aspect; whilst Magnum Bonum, Czar, and Victoria Plums, also Morello Cherries may be planted in a north border. Where there is a great extent of wall, it may be advisable to plant trees of the same kind against

different aspects, as, by doing this, a succession of the same variety of fruit may be ensured, and the duration of the supply thereby lengthened. Where space permits, always endeavour to plant the early-blooming varieties near to each other for protection; if early and late sorts are mixed together in planting, the late sorts are unduly hastened into bloom by the protection afforded for the earlier trees. These remarks are not intended to apply so much to gardens in the southern and warmer parts of the country as in colder districts. The distance apart at which the trees should be planted will depend entirely upon the variety, height of the wall, and the quality of the soil. I will deal more fully with this particular point in another calendar.

GENERAL REMARKS.—Follow out the instructions given in preceding calendars as to the gathering and storing of ripening fruits. All shoots on wall and other trees that are not required should be promptly removed, so that the remaining wood and buds may have the full benefit of all the sunlight and air possible. Continue to train the shoots of wall, espalier, pyramid, and other trained trees, removing all foreground shoots from Pears, Apples, Plums, and Cherries. Train the shoots of Peaches and Nectarines well apart.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of HADDINGTON, K.T., Tynninghame, East Lothian.

CHINA ASTERS.—Besides the well-known *Victoria* and *Chrysanthemum*-flowered sections of China Asters, the large-flowering, single sorts, with azure blue, deep blue, pink, rose, and salmon colours, lend themselves to the decoration of the flower garden. The best of the double-flowered varieties for decorative effect is *Ostrich Plume*, especially in its salmon, white, and light-blue shades. In addition to these, we cultivate at Tynninghame, several hundreds of the quilled type, of which the deep purple and lemon-coloured varieties please me most. They are very valuable for furnishing vacant places in succession to earlier-flowering plants, and afford useful supplies of cut blooms. Usually, China Asters are treated too much as tender annuals, and are sown too early to be of use in the autumn.

BEDDING SCHEMES.—Although the fashion has changed so completely in flower bedding, geometrically-shaped beds and rectilinear borders may be made to provide a good effect, if a general colour scheme governing the whole is embodied. There may be one dominating colour or two harmonising tones, such as are obtained with various shades of pink and pale blue, or pink and mauve. Contrasting colours also may be employed, such as dark blue and yellow ranging from sulphur to orange. If the beds are very large in size, the main part may be planted with a distinct colour, and finished on the edge with a broad band of a colour which harmonises, but of a different shade. Small beds may be planted with one colour only, or with two shades of the same colour. A good effect is produced by planting a low-growing subject as a carpet with taller plants intermingled, the colour of both being either the same or different shades of the same colour, in which case the taller plants should be of the lighter tone. In small beds the colours may be mixed, or they may be planted wholly with one colour. Ribbon borders should not be admitted into a scheme of this kind. Another good effect may be obtained by employing a border that harmonises with the main block as well as with the other flowers in the several beds. In attempting to improve dwarf arrangements tall plants are frequently employed, in which case, as I have already pointed out, the taller plants should be of the same tones as the dwarfier ones. The larger kinds should not be used so sparsely as to convey a lack of material; *Lobelia cardinalis*, for instance, is often interspersed so widely apart that it loses its decorative value. The better plan is to arrange such subjects fairly closely together, so that from whatever point the bed is examined, several of the spikes catch the eye. Oftentimes a well-designed scheme in flower bedding is marred or spoiled by the introduction of unsuitable edging plants. An

edging is not by any means essential. It would be a good plan before the season is over to make notes of any good flower-bedding observed.

THE SEASON.—In the absence of rain, the effects of the cooler nights are apparent in the flower garden, which, after a brief period of dullness, has resumed its former gay appearance. Some plants, notably *Clarkia elegans* and pink *Godetias*, have been quite spoiled by the great heat. The *Clarkias* I have replaced by orange coloured *African Marigolds*, and the *Godetias* by *Aster Amellus bessarabicus*, which will continue in flower till well into October. They are associated with flowers ranging from pink to carmine and pale blue; replacing the pink with the blue has not produced the jarring note in the scheme which might have been expected. The *Marigolds* also have proved a good substitute for the *Clarkias*; they are associated with rose-coloured *Hollyhocks*, deep blue *Larkspurs*, and tall *Lobelias* with vivid colour, a rather strong colouring, but one suitable for the environment.

GENERAL REMARKS.—Remove seed vessels from *Scabious*, *Lupines*, annual *Chrysanthemums*, and similar plants. A few weeds may still be found in the mixed borders, but if these are destroyed, there should be no more this season. The variegated *Ice Plants* (*Mesembryanthemum*), *Canary Creeper* (*Tropaeolum canariensis*), and other trailing subjects will require checking to prevent them obtruding on other plants.

THE APIARY.

By CHILDRIS.

FEEDING. The bees which will be concerned with brood-raising next spring are those which are raised now and later, therefore, a strong brood now is a good start for next year. Where the brood chamber has plenty of sealed stores, feeding should be resorted to, to stimulate the queen, because, the honey flow having ceased, she will soon cease egg-laying unless fed artificially. Slow feeding should be practised, affording only sufficient food to meet the daily wants of the bees. For this purpose, a graduated feeding bottle is needed, so that one or two holes only may be exposed, otherwise the bees will appropriate large quantities of the syrup, and store it. Where the brood frames do not contain 30 pounds of sealed food, then it will be necessary to feed more quickly, so that the bees may get that quantity stored and sealed before the very cold weather arrives.

SYRUP MAKING.—Since disease has been common, and the cause unknown, it would be well to run no further risk of trouble, and so use only pure cane sugar. There are numbers of dealers who undertake to supply suitable cane sugar in 7 lb., 14 lb., 28 lb., 56 lb., or 112 lb. bags. The usual food for autumn feeding is made with white (cane) lump sugar 10 lb., water 5 pints, salt $\frac{1}{2}$ ounce, and vinegar 1 ounce. Let the whole boil for a few minutes, taking care it does not burn. Place the food in the hive in the evening, and do not spill any of the syrup, as this will incite robbing. Fill the bottles to the brim with warm syrup, and cover the hive warmly, using plenty of quilts. As soon as the bottles are empty, replace them with full ones. Some beekeepers believe that 7 pints of water may be used, as in summer and spring feeding, but this is a great mistake, because the syrup is too watery, it does not ripen, therefore the bees do not seal it, and early in the new year there are signs of dysentery. Last year several cases of watery food came to my notice, and in one apiary it set up the worst attack of dysentery I have seen.

WASPS.—These insects are causing beekeepers much anxiety. The best methods, failing the destruction of their nests, is to partially close the entrance so that one bee only may pass at a time; this enables the bees to control the wasps and effectually keep them at bay.

WAX-MOTH.—Now that beekeepers are constantly opening their hives for feeding purposes, they should examine the quilts and tops of the frames along the saw cut for the grubs of the wax-moth. The pest can be completely eradicated.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, and sent by post as early as possible on a Friday morning, if desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unsolicited communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, SEPTEMBER 18—

International Conference on Genetics at Paris (6 days). Nat. Chrys. Soc. Executive Com. meet.

WEDNESDAY, SEPTEMBER 20
Nat. Dahlia Soc. Exh. at Royal Botanic Gardens, Regent's Park (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich 56° 2°.

AT 11 A.M. TEMPERATURES.
LONDON.—Wednesday, September 13 (6 P.M.): Max. 64°; Min. 58°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, September 14 (10 A.M.): Bar. 30.2°; Temp. 61°; Weather—Sunshine.

PROVINCES.—Wednesday, September 13: Max. 59° St. Albans; Min. 52° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY

AND FRIDAY—
Dutch Bulbs, at 67 & 68, Cheapside, by Protheroe & Morris, at 10.30.

MONDAY, WEDNESDAY, AND THURSDAY—
Dutch Bulbs and Lilies, at Stevens' Auction Rooms, 38, King Street, Covent Garden, at 12.30.

WEDNESDAY
Trade Sale of Miscellaneous Bulbs and Plants, at 2; Palms and Plants, at 5, at 67 & 68, Cheapside, by Protheroe & Morris.

A consignment of Palms, Bay Trees, Aspidistras, &c., from Belgium, at Stevens' Auction Rooms.

FRIDAY
Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The Sweet Potato. Ipomœa batatas, the Sweet Potato, used as a vegetable in so many parts of the world, forms the subject of an interesting monograph by Mr. B. H. A. Groth (*Contributions from the Botanical Laboratory of the University of Pennsylvania*) in which the origin and history, economic importance and structure, and the varieties are described. With respect to the origin of Ipomœa batatas, which has spread over the entire tropics and sub-tropical regions of the world, two opinions have been advanced. One that it is of American, and the other that it is of Asiatic origin. Mr. Groth concludes, from the available historical evidence, that the plant is a native of tropical America. In the section dealing with the history of the Sweet Potato, citations are made from Clusius (1601), who had seen roots in London in 1551, from Bauhin (1623), Gerarde (1636), and Parkinson (1640), who gives a fairly full account of the "Virginia Potato," as he calls it. The species was probably first recorded from Cuba in 1492, and introduced into Spain in 1526. In its natural tropical habitat, Ipomœa batatas is a perennial, and when cultivated by native races for food, it is

usual for the tubers to be dug and removed from the plant, which is left to grow till replanting is deemed advisable. Though cultivated to an enormous extent, it is impossible to form an accurate estimate of the quantity produced. In Mexico, Central and South America, the Sweet Potato is a staple crop as far south as Argentine and Chili. It is cultivated largely in Africa, and in the Mediterranean region of Europe. It is used as food in Persia, India, Malaya, China, Japan, and has been so used in many of these countries from time immemorial. In Japan the tubers, cut into pieces and roasted, are sold in the streets like baked Potatoes or roasted Chestnuts are sold in England. As is natural, considerable attention is devoted by Mr. Groth to the cultivation of the Sweet Potato in the United States, where, owing to the tropical summers it is grown as far north as New Jersey. In this State a crop of 150-200 bushels per acre yields a good margin of profit. Far larger crops than this are obtainable, however, and in a good season 400-600 bushels may be harvested, though the published averages give figures far below that amount. As is the case with so many plants under cultivation, the number of varieties of Ipomœa batatas is very considerable, and these varieties Mr. Groth endeavours to classify, a work which is as important economically as it is difficult. The monograph is illustrated by a large number of photographs, which illustrate the remarkable range of variation met with in the cultivated forms of this species.

Australian Plants.*

This book treats specially of the cultivation of Australian plants in Australia, and its publication appears to have been made possible by a number of "Original Subscribers," whose secretary contributes an introductory note. We make the following extract:—"Thirty-six years ago Mr. Guilfoyle brought to Victoria the very genius of landscape gardening, and a fulness of knowledge concerning botany and the habits and adaptability of plants and trees that cannot be excelled. He has left our botanic garden a place of the most animated and impressive beauty, as well as a living school of profit and delight to all who visit it."

The author opens with an enthusiastic appreciation of the Australian flora, and its value in gardens, instancing the botanic gardens of the different States of the Commonwealth. This is followed by practical directions for sowing and raising Australian seeds and on the treatment of Australian plants. The illustrations include a selected view in each of the Botanic Gardens of Melbourne, Sydney, Adelaide, Brisbane and Hobart; the last being not the least beautiful. The remaining illustrations are apparently all photographs of trees and shrubs in the Botanic Garden of Melbourne. They afford a good idea of the habit and effect of a large number of species belonging to

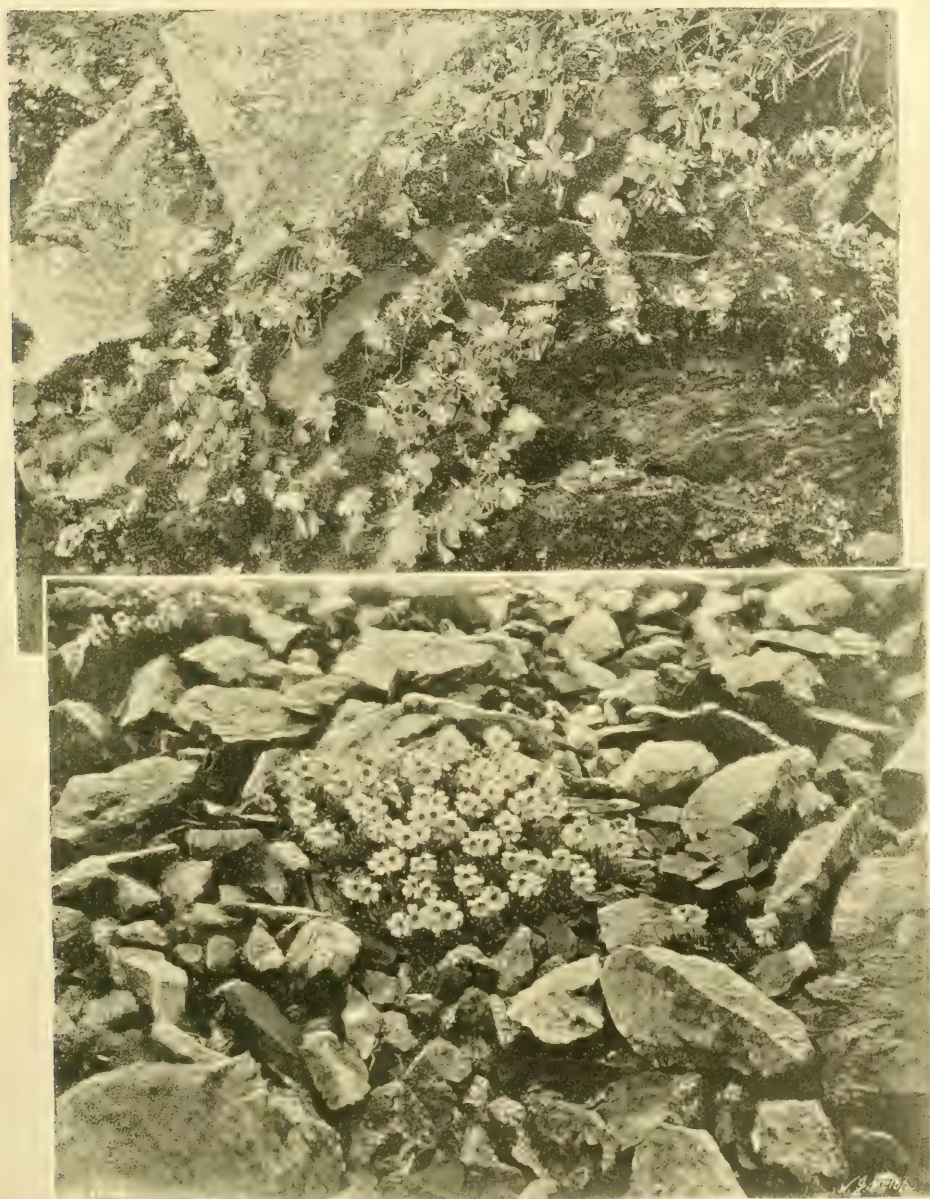
Australian Plants Suitable for Gardens, Parks, Timber Reserves, &c., by W. R. Guilfoyle. (Whitcombe and Tombs, London and Melbourne.) Octavo, pp. 478, with about 300 illustrations. Price: 15s. net.

genera of the characteristic families of Australian plants. Thus, about 50 species each of Eucalyptus and Acacia appear, and representatives of other genera of Myrtaceæ and Leguminosæ. There are species of Proteaceæ, Rutaceæ, Casuarinaceæ, Myoporaceæ; and such genera as Xanthorrhœa, Castanospermum, Doryanthes and Macrozamia. Mr. Guilfoyle has also attacked the difficult problem of "common names." It is, of course, impossible to obtain anything approaching uniformity in popular names in large genera like Eucalyptus and Acacia, which are spread over the whole country. Here, at home, we have our Oak, Ash, Beech, Birch, Elm, and so on, and it is quite easy in comparison, as against 150 species of Eucalyptus and 300 species of Acacia. But it is only the botanist here who distinguishes over 70 species of Carex, which hardly possess a common or popular name, beyond Sedge. The bulk of Mr. Guilfoyle's book is a botanical, alphabetical list of Australian plants with authorities, natural orders, habitats and popular names, but there are no descriptions. It is not a complete list, and it is not clear what was the guiding principle in the selection. What seems to be required is a classification of the plants for practical purposes; for different soils and situations, and for ornamental and economic uses.

R.H.S. SPRING BULB SHOW.—The Royal Horticultural Society will hold a special exhibition of forced spring bulbs on March 5 and 6, 1912. The object of this show is to demonstrate the varieties best suited for gentle forcing, and exhibits of small and large collections are invited from amateurs and traders. R.H.S. medals will be awarded according to merit. The council also offer, subject to the general rules of the Society, prizes, presented to them by the General Bulb Growers' Society of Haarlem, in six classes. There are two divisions, for amateurs and traders respectively. The classes are (amateurs) for 18 Hyacinths, distinct; 12 Hyacinths, distinct; six Hyacinths, distinct; and four pans containing 10 bulbs of one variety of Hyacinth in each pan; the blooms of each pan to be distinctly different in colour from those of the other three pans; and (trade growers) a collection of 100 Hyacinths in 20 named varieties, five blooms of each variety, and a collection of 120 Hyacinths in 12 varieties in pans, 10 roots of one variety in each pan. In the two last classes the Gold Medal of the General Bulb Growers' Society of Haarlem is offered for the best exhibit. At the same meeting, subject to the general rules of the Society, the council offer prizes, presented to them by ROBERT SYDENHAM LIMITED, for Bulbs grown in moss fibre or similar material (not earth) and without drainage.

NATIONAL DAHLIA SOCIETY.—The Metropolitan Show of this Society will be held on the 21st inst. in the Royal Botanic Garden, Regent's Park. Particulars may be obtained from the secretary, Mr. E. F. HAWES, Royal Botanic Garden, Regent's Park.

CHILDREN'S POT-PLANT COMPETITION.—The North British Academy of Arts instituted, two years ago, a pot-plant and window competition among the children of Newcastle and Tyneside generally. Nearly 4,000 children competed for the prizes this year at the annual competition, which took place on the 1st inst.



W. & A. G. & Co. Ltd. 1911.

Fig. 100.—CHINESE PRIMULAS IN THEIR NATURAL HABITATS.

Above: *Primula membranifolia* Below: *Primula dryadifolia*.

(See p. 234.)

ROYAL AGRICULTURAL SOCIETY.—The 73rd annual show of the Royal Agricultural Society of England will be held on the racecourse, Doncaster, from Tuesday, July 2, till Saturday, July 6, 1912.

FESTIVAL OF EMPIRE AWARDS.—The following awards have been made to horticultural exhibits at the Festival of Empire and Imperial Exhibition held at the Crystal Palace:—Grand Prize to THE KING'S ACRE NURSERIES, LTD., Hereford, for a model orchard and a general garden exhibit of fruit trees in pots. Diploma of Honour to Messrs. TOOGOOD & SONS, Southampton, for garden and seeds exhibit, and to the BROMS-GROVE GUILD for garden ornaments. Gold Medals to Mr. HEMSLEY, Crawley, for a rock and water garden and fernery; Messrs. CHEAL & SONS, Crawley, for a garden and rock-work exhibit; Messrs. B. MAGGS & CO., for garden seats, &c.; Messrs. ALEX. SHANKS & SON, for lawn mowers, and Messrs. BARFORD & PERKINS for rollers. Silver Medals to THE HARROW NURSERY CO., for Roses; Messrs. B. HORTON & SONS, for garden fencing; THE BEACH CHAIR CO., for garden chairs; and THE ACME PATENT LADDER CO., for ladders. Bronze Medals to YE TUDOR ROSE SHOPPE, for a garden and flower shop; and Messrs. TURRELL & HOLICK, for garden seats.

CARBON BISULPHIDE FOR RATS.—An American Consular report gives the following method of destroying rats adopted by M. DE KRUYFF, of the Agricultural Bureau of the Dutch Indies at Buitenzorg, Java. All visible rat holes were first stopped with earth to ascertain which holes were inhabited, for the inhabited holes were found re-opened on the following day. Half a teaspoonful of carbon bisulphide was poured in each of these holes, and after a delay of a few seconds to allow the liquid to evaporate, the mixture of vapour and air was ignited. The result was a small explosion, which filled the hole with poisonous gases and killed all the rats almost instantly. A pound of bisulphide is sufficient for more than 200 rat holes; 131 dead rats were found in 43 holes which were opened after the operation. It is further stated that satisfactory results in exterminating porcupines have been obtained by this method. *Times*.

GARDENING IN CEYLON.—According to the *Tropical Agriculturist*, local gardens in Ceylon have much improved during the past 15 years, although the general standard is still a low one. A circumstance that militates against good gardens, says the writer, is the fact that residents in Ceylon are continually on the move, but the chief trouble is that many garden owners employ only a coolie and not a trained gardener.

PLANT COLLECTING IN MEXICO.—A trip extending over 10 months in the tropical jungles of Tehuantepec in search of new plants has just been completed by Mr. EDWARD HOWARD, a native of Los Angeles, on behalf of Mr. E. L. DOHENEY. The vegetation of this South American State is remarkably luxuriant; an illustration in the *Florist Exchange* for August 19 shows the collector seated beneath magnificent plants of *Dioon spinulosum* in the midst of other tropical plants.

THE TEACHING OF GARDENING.—According to a Blue Book just issued by the Board of Education, gardening instruction for boys was given during the year 1909-10 at 1,796 public elementary schools and 7 centres in England, as compared with 1,505 schools in 1908-9 and 1,204 in 1907-8. The registered number of scholars was 32,276, as compared with 27,553 and 20,372 in the two previous years. The number of scholars who qualified for grant and attended for at least 40 hours was 18,225, while 9,612

scholars qualified for grant and attended for at least 20 hours, but less than 40 hours. Girls received instruction in gardening at 111 schools in England, as against 10 in the previous year, the total number of registered scholars being 1,022, as against 555. Of the number who qualified for grant, 336 attended for at least 40 hours, and 421 for at least 20 hours, but less than 40 hours. In Wales, gardening for girls was taught at 9 schools, as against 7 the previous year, the number of registered scholars being 71, as compared with 37. Of the number who qualified for grant, 22 attended at least 40 hours, and 32 between 20 and 40 hours. The number of Welsh schools for boys whose scholars received instruction in gardening was 80, as against 82 in 1908-9, and 56 in 1907-8. The total number of registered scholars was 1,307, as against 1,289 and 867 in the previous years. Of the number who qualified for grant, 569 attended at least 40 hours, and 542 at least 20, but less than 40. Gardening for girls was not recognised until 1908-9.

THE SAN JOSÉ SCALE IN THE TRANSVAAL.—Orchardists and farmers will regret to know that the most dreaded of all fruit pests—San José Scale—has been discovered in the Transvaal. Such an occurrence in any young country would be regretted, but in view of the weak-kneed and abortive efforts of the Department of Agriculture to prevent the spread of the Codling Moth, we can only characterise it as a misfortune. If San José Scale is ever to be wiped out, it will need more pluck, energy and determination than any other insect pest has yet required. If it is not stamped out it will spread. It is not yet known in how many places it exists. Will the pest be allowed to cripple, firstly, the Citrus orchards of the Transvaal, then to do similarly in Natal, and also to ruin the orchards of the Western Province? *South Africa Gardening and Agriculture*.

VEGETABLE SHOW AT MANCHESTER.—A vegetable exhibition was held by Messrs. DICKSON & ROBINSON, at Manchester, on the 13th inst., prizes being offered in 17 classes. There were three classes for "Premier" Onion, one being for four bulbs open to growers in all parts of the country, the second for four bulbs open to growers north of and including Birmingham, and the other for the heaviest bulb. The 1st prize in the open class was won by Mr. WEST, Hackwood Park Gardens, Hampshire; 2nd, Mr. W. H. DAVIES, Castle Hill Gardens, Dorchester. Mr. T. JONES, Penylan, excelled in the class open to northern growers, whilst Mr. A. J. COBB, Duffryn Gardens, Cardiff, showed the heaviest bulb in a specimen weighing 3 lb. 2 oz. The 1st prize in the class for a bunch of "Money-maker" Tomato was won by Mr. ABBOTT, The Holme Gardens, Regent's Park, the bunch having 21 fruits. 2nd, Mr. HEAMEN, Poynton Towers Gardens. The best dish of exhibition Runner Beans was shown by Mr. TOMLINSON, Whitegate. Mr. OAKES, Flixton, was placed first for Market Favourite Beet. The finest exhibit of three heads of Sugar Loaf Cabbage was exhibited by Mr. ASHLEY. There were two classes for Carrots, one for the variety Perfection, in which Mr. W. T. JEEVES, Holbeach, was awarded the 1st prize and the other for Matchless, the 1st prize being awarded to Mr. JACKSON, Gregynog, Monmouthshire, who also excelled in the class for three heads of Snowdon Cauliflower. Mr. WINCHESTER, Rubery, showed the best Celery, the variety being Prize Pink. The winners of 1st prizes in other classes were (a) Exhibition Leek, Mr. TYSOE, Bedford; (b) Hollow Crown Parsnip, Mr. BISHOP, Birch Hall Gardens; (c) Early Favourite Savoy, Mr. GUY, Ormskirk; and (d) Manchester Market Turnip, Mr. WALKER.

CHINESE PRIMULAS.

PRIMULA MEMBRANIFOLIA AND P. DRYADIFOLIA.

PRIMULA MEMBRANIFOLIA (see fig. 100) is a charming little plant, peculiar to the Tali Range, where it was first discovered by Père Delavay in the early 'eighties. It grows amongst rocks, and somewhat resembles, at a first glance, *Primula yunnanensis*, with foliage of a pleasing light shade of green. The flowers are large, delightfully fragrant, and coloured a soft shade of violet-rose with a yellow eye. The altitudinal range where it is met with is not great, being from 9,000 to 11,000 feet. Amongst the many *Primulas* found on the Tali and adjacent mountains, *P. membranifolia* is unique in having the most prolonged flowering season; in favoured situations this extends over four months, the earlier plants showing bloom towards the end of April or beginning of May, the later ones flowering well into August.

Even on the Tali Range the species is extremely local, though it grows abundantly in some parts, forming large colonies. It is most plentiful on the cliffs, forming the restricted entrances to the narrow side valleys which break up the eastern flank of the range, lat. 25° 40' N. There it thrives well in the mossy crevices of wet limestone rocks, almost invariably in shady northern exposures. The roots do not penetrate the rock, but are embedded in the moss, and where the supply of moisture is greatest the plants are most luxuriant. The best and largest specimens I noticed were growing in an inaccessible position on a cliff under a small waterfall, where the plants were continuously and heavily sprayed with moisture.

The species forms a small, glabrous perennial with delicately membranous, light-green leaves that are broadly ovate or obovate; 2 to 5.4 centimetres long and 1 to 2.2 centimetres broad. They taper towards the base, and have equally biserrate margins: The under surface of the foliage is densely coated with a light sulphur-coloured farina. The flower-scapes are slender, 1 to 5 centimetres high, and covered with farina, forming a simple umbel bearing one to five flowers. The bracts are short and linear-lanceolate in shape. The campanulate calyx is densely farinose and deeply divided. The corolla tube is greenish-yellow, narrowly funnel-shaped, 1 to 1.5 centimetre long, much exceeding the calyx; the limb is of a soft violet-rose colour, slightly concave and 14 to 16 millimetres broad. The capsule is ovoid, small and slightly exceeds the calyx.

PRIMULA DRYADIFOLIA (see fig. 100).—Of the numerous Alpine species of *Primula* indigenous to North-west Yunnan, *P. dryadifolia* occurs at the greatest altitude, being only approached by one other species, *P. bella*. In the summer of 1905 I found small quantities of *P. dryadifolia* on the Mekong-Salwin dividing range, about latitude 28° N., but Père Delavay first collected it on the Lichiang Range, which may be considered its real habitat.

There, surpassing almost all vegetation in hardness, the plant flourishes abundantly on huge limestone scree close to the limit of perpetual snow, at from 15,000-16,500 feet altitude. It is the latest species to flower, and the earliest to mature its seeds; not until June is it free of its icy covering, and, as early as October, it is again buried under many feet of snow. During the brief season between it is severely exposed to the elements. Frequently it is covered with snow and exposed to bright sunshine in the same hour; day after day it may be swathed in heavy mists or drenched by blinding showers of icy rain; other hardships include being frozen by night, and buffeted continuously by chilly blasts. Yet it survives all these troubles, beautifying spots that would otherwise be barren wildernesses.

It is essentially a rock-loving plant, and is well adapted, by means of its long, woody root-stock,

for penetrating the crevices of the rocky ledges and loose formation of the screes amongst which it grows. The plant is a lover of moisture, especially during the flowering season. The plant shown in fig. 100 represents a typically-branched specimen growing in a favourite situation. In order to obtain seed at the end of the season, I had to dig through a layer of snow 1 to 2 feet deep. The growth reaches a height of from 2 to 4 inches, the rootstock being more or less woody, and much branched towards the apex. The branches are densely clothed with the dried remains of the foliage of previous years. The leaves are small, 1 to 1½ centimetres long, 8 to 12 millimetres broad, ovate in shape, with revolute, crenate margins. The base of the leaf is more or less cordate and contracted into a broad wing running the full length, 10 millimetres, of the petiole. The upper surface of the foliage is dark green and glabrous, whilst the under side is coated with a dense yellowish farina. The scapes are stout, two to three times the height of the foliage, puberulous, and coloured purplish towards the apex. The flowers, which are faintly fragrant are very shortly pedicellate, and produced in compact heads of three to five. The bracts are broadly ovate, tridentate, 10 millimetres long, sparingly farinose and coloured a ruddy green. The calyx is broadly campanulate, and divided almost to the middle. The lobes of the sepals are ovate, obtuse, and either entire or slightly crenate. The corolla is a bright crimrose-rose, eye yellowish-white, tube slightly longer than the calyx limb spreading 1½ to 2 centimetres broad. The lobes are very broadly ovate, with the apices deeply four-dentate. The capsule is oblong, slightly greater than the calyx. Seeds large and light-brown. The flowering season is in July-August.

Of all Primulas there is none more adapted by natural habits for the rock garden, nor, by constitution, for our climate. If it fails it will rather be because the climate is too genial. *George Forrest.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

ADMISSION PRICES TO THE ROYAL INTERNATIONAL EXHIBITION, 1912.—Apart altogether from the Royal Horticultural Society, gardeners as a class should be treated with the utmost consideration, and be afforded the earliest opportunity to inspect the exhibition at a nominal entrance fee. The International Flower Shows which have been held in Edinburgh were open to gardeners at a charge of 1s. before the general public were admitted. Is it impracticable that something of a like nature should be arranged at the Chelsea Show? The conditions as published are prohibitive; they shut the doors close and fast against gardeners living at a distance. Could not a few hours be set apart for gardeners between the termination of judging and the opening of the show. The distribution of tickets to gardeners and nursery employees would present no great difficulties. *R. P. Brotherton.*

FOG AND POTATO DISEASE (See p. 192).—The fogs which Mr. Clark states followed a thunderstorm from the sea during one or two nights are, no doubt, the cause of the disease appearing so suddenly amongst his Potatoes. Whilst the atmosphere and Potato tops were quite dry, the disease spores were incapable of germinating, but they only needed moisture to render them active, and that the thunderstorm supplied. In previous years the worst and most sudden attacks of the disease have always been found immediately following thunderstorms, the vapour arising from the warm soil rendering the foliage sufficiently moist for the fungus to spread by means of its spores. The greater the heat of the soil the denser is the vapour that arises after rains. In previous years the soil was not warm, and although the rains wetted the leaves and stems it dried quickly. It is the atmospheric vapour which does the mischief. *A. D.*

"RINGING" OF CHRYSANTHEMUMS.—In response of Mr. Nobbs's letter (see p. 154) with reference to obtaining dwarf Chrysanthemums in small pots by "ringing," no doubt many of your readers are deterred from practising this useful method—not only in the case of Chrysanthemums, but many other plants—on account of the difficulties presented by the pot. It is no easy matter to saw a clay pot in half (to say nothing of the "unkindness" to the saw), and the two halves are by no means easy to fix in position. To overcome this difficulty I have this season tried the patent waterproof leatherboard pots—which I believe can be obtained from most seedsmen—and have found them to answer admirably. They are fitted with a loose bottom, which can be removed while the pot is being slipped over the shoot to be "treated," a slit is then made in the base, from the edge to the hole in the centre, to enable the stem to pass through, and the base is then fixed in position, the whole operation taking no more than a couple of minutes. An additional advantage is afforded by the fact that the weight of the leatherboard pot is only a fraction of that of the ordinary clay pot, and a single bamboo cane is sufficient to secure it in position. *H. F. Taylor, Valkyrie, Cheshire.*

FRUITING OF THE POMEGRANATE.—A Pomegranate growing on a south wall here is bearing a fruit about the size of a small Orange, and the fruit is still swelling. It is an object of interest to all who see it. The tree is a very old specimen, and this is the first time it has ever been known to fruit. Is it a rare thing for the tree to fruit in this country? *A. Jeacock, Sharpsham Gardens, Tetbury, South Downs.* [The Pomegranate (*Punica granatum*), although such an old garden plant, very seldom fruits out-of-doors in this country.—Eds.]

FRUITING OF THE CATALPA.—A specimen of Catalpa bignonioides, 30 to 35 feet high, growing on a lawn in a Sussex garden, is carrying a large number of its beanlike pods, which are already about 12 inches in length and are still growing. The pods are assuming a purplish-brown colour, and are hanging in clusters as thickly as pods of Canadian Wonder Bean. The tree has only fruited occasionally, and has never before produced more than a very few pods. The Catalpa will flower from 10 to 12 years after planting, and few trees are more certain to bloom annually afterwards. *A. P., Uckfield, Sussex.*

ROSA HEMISPHERICA.—In reply to Mr. Taylor (see p. 174), Parkinson is the authority for John de Franqueville re-introducing the above-named Rose. He calls it *Rosa lutea multiplex sine flore plena*. *R. P. Brotherton.*

LAGERSTREEMIA INDICA.—Amongst other rare species which have flowered in the open in these gardens during this exceptional season is a plant of Lagerstremia indica growing against a south-east wall, slightly shaded by other trees. The panicles of daintily poised and prettily-serrated pink flowers are very interesting. I wonder if this species has flowered out-of-doors in other gardens this season? *R. W. Norman, Heligan Gardens, St. Austell.*

LARGE PEACHES.—I am sending you a fruit of Alexandra noblesse Peach that weighed just over 1 lb. when it was gathered. I had several other fruits that weighed 14 ounces each. *J. C. McP.* [The fruit had lost a little by evaporation when it reached us, as it turned the scale at 15 ounces, although it was not quite ripe. On reference to our "Record" Book, we find that Mr. A. T. Goodwin in *Gardeners' Chronicle*, August 27, 1881, p. 272, mentions a fruit of Dr. Hogg Peach that weighed 23½ ounces. The next heaviest fruits recorded are Gladstone, 15½ ounces, Noblesse 15½ ounces, and an unnamed variety, 11½ ounces.—Eds.]

WASPS.—I have found "Scott's Wasp Destroyer" an excellent preparation for destroying wasps. If the wasps attack, say, a bunch of Grapes, smear a little of the preparation over the berries attacked, and label the bunch, as the substance is poisonous. A few other bunches may be smeared in different parts in the vineyard. The wasps will instantly fly to the bunches that

have been treated, and will also settle eagerly on the bottle and stick with which the material has been applied. The bunches should be smeared several times during the first two days. The insects eat the poison, and most of them fall dead on the floor; those that are able to get away never return, whilst others cease to visit the vineyard altogether. Three days will suffice to clear a vineyard of wasps after commencing to use this preparation. Figs and Peaches may be treated in the same way by smearing occasional fruits with the destroyer. *S. A. C., Wisley.*

—We have destroyed 32 nests this season, and in the last one taken I was surprised to find 42 young queen wasps, which I send with this note. It was a very large nest, and measured 31½ inches in circumference, being about 8 inches high. There were seven tiers of combs. Can any reader inform me if it is the habit of the wasp to breed so many queens in one colony? It shows how important it is that every nest should be destroyed, for every queen that survives the winter might be responsible for a fresh colony next season. *Arthur Bartlett, Lea Green Gardens, Matlock.*

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 12.—A meeting of this society took place in the Vincent Square Hall, Westminster, on the above date. A good display was made for the present season, and many plants of great interest were exhibited, but the attendance was below the average. The Orchid Committee recommended a First-class Certificate to a beautiful variety of *Sophrora-Laelio-Cattleya* named *Jeannette*, shown by Messrs. CHARLESWORTH & Co., this being the only award made to an Orchid on this occasion, save a cultural commendation for a splendid plant of *Dendrobium glomeratum* cultivated by Sir Trevor Lawrence (RT. Mr. W. H. White).

There were large quantities of Dahlias for the consideration of the Floral Committee, including representative collections from Messrs. CARTER, PAGE and Co., Messrs. HOBBS, LTD., and other firms. Two novelties secured Awards of Merit, one a Collarette variety and the other a single-flowered Dahlia. A pure-white variety of the Perpetual-flowered Carnation was given a similar award. This was shown by Messrs. ALLWOOD BROTHERS. The remaining awards recommended by the Floral Committee were made to hybrids of *Amaryllis Belladonna*. The variation exhibited in the hybrids of *Brunsvigia* and *Amaryllis* and in the forms of *Amaryllis Belladonna* itself possessed unusual interest. Three Awards of Merit were recommended, namely to *Amaryllis Parkeri* (which is almost identical with the plant formerly known as the *Kew* variety of *Amaryllis Belladonna*), *Amaryllis Parkeri alba*, and a hybrid from *Brunsvigia* and *Amaryllis Belladonna* exhibited by Messrs. SANDER & SONS, under the somewhat awkward name, *Brunsdonna Sanderi alba*.

The Fruit and Vegetable Committee recommended an Award of Merit to a first-class culinary Apple named *Charles Eyre*, shown by Mr. WILLIAM POPE. This award adds one more to those already given for seedling Apples raised by Mr. CHARLES ROSS.

In the afternoon a lecture was given by Mr. Thomas Smith on "Small Holdings."

Floral Committee.

Present; Messrs. W. Marshall (Chairman); Henry R. May, Wm. J. James, Arthur Turner, George Paul, John Green, G. Reuthe, Jas. Hudson, John Dickson, Charles Dixon, Herbert Cutbush, C. R. Fielder, Wm. Howe, J. F. McLeod, Chas. E. Pearson, John Jennings, J. W. Barr, A. Kingsmill, and R. Hooper Pearson.

On no previous occasion have so many varieties of *Amaryllis Belladonna* been exhibited at a R.H.S. meeting. Messrs. SANDER & SONS, St. Albans, showed a very distinct form, in which the colour was characteristic of the best type of *A. Belladonna*. Mr. H. J. ELWES, V.M.H., Colborne, Gloucester, sent several well-defined varieties, of which *A. Belladonna blanda* was one of the best, especially a variety with this name received from Cornwall which had very bright

and large flowers. LEOPOLD DE ROTHSCHILD, Esq. (gr. Mr. Hudson), staged four varieties, all distinct from the type and notable for their wonderful vigour.

Messrs. H. CANNELL & SONS, Swanley, Kent, staged large batches of Begonia Washington, an exceedingly free-flowering, double-red, tuberous-rooted variety, which is especially valuable for flower gardening, and a still larger collection of Begonia Rex in variety. These plants were all splendidly grown, and the foliage Begonias possessed delicacy of form and colouring rivaling some of the show Caladiums.

E. H. BROWN, Esq., Highwood, Roehampton, Surrey (gr. Mr. R. Bradford), arranged a fine group of useful-sized Codiaums, interspersed with Palms, Adiantum cuneatum, small groups of Liliums, and one of Plumbago capensis. The plants of Codiaums, in great variety, were exceedingly well grown, and the leaves bore rich colours. The group was relieved with tall stems of the variegated Dracena Sanderi. (Silver-gilt Banksian Medal.)

Messrs. WM. CUTBUSH & SON, Highgate, London, staged a collection of fine-coloured Codiaums flanked with Palms, Liliums, Ericas, and other plants. Phoenix Roebelinii was represented by a healthy, well-grown plant. The Ericas included the white E. nivalis and the purple-flowered E. gracilis, very freely flowered. At one end of the exhibit there were some healthy plants of Cordyline Bruniit variegata with brightly-coloured leaves, whilst near the other end there were several good spikes of Vallota purpurea. (Silver Banksian Medal.)

Messrs. H. B. MAY & SONS, Upper Edmonton, again staged a mixed collection of Ferns and shrubby Veronics, similar to their exhibit at the last meeting. Nephrolepis exaltata, Marshallii compacta, which this firm exhibited so well at the Olympia Show, was shown in all its delicate beauty. (Silver Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, provided a pleasant change with a large batch of Gesnera Orange King, the plants being in 5-inch pots. The plants were bearing fine flowers and had large, rosy-purple-tinted leaves. Nearly opposite the Gesneras Mr. RUSSELL arranged a semi-circular group of Clematis, bordered with dwarf Fuchsias and having an outer row of variegated Ives in small pots. Of the well-flowered Clematis, we were especially pleased with President, deep blue; Gem, Oxford blue; Lady Northcliffe, a very fine, free-flowering blue variety; Ville de Lyon; Lady Caroline Neville, a large Cambridge-blue flower with darker band of colour along the middle of the petals, and Coccinea with small red flowers, showing yellow at the tips. The hardy Fuchsias included F. globosa, a useful rockery shrub; F. Brightonensis, a profuse bloomer; and Riccartonii Elysée. (Silver Banksian Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Middlesex, flanked their Apple and Pear exhibit with a fine standard plant of Metrosideros floribunda, enclosed with a group of Chironia exifera.

DAHLIAS.

Messrs. CARTER, PAGE & CO., 52 and 53, London Wall, London, filled the end of the hall with a collection of cut Dahlia blooms, arranged in a bold and very attractive manner. This most comprehensive exhibit amply demonstrated that while the record dry season has been injurious to most plants, the Dahlia is a striking exception. Many of the Cactus varieties were arranged 20 or more blooms together in shallow baskets, well demonstrating their colour values. The best white Cactus varieties were Mrs. Shoemith, White Lady, and Snowdon. Of the bright colours, the most attractive were Nisi Prius, Amos Perry, Coronation (miniature Cactus), and Mary Panier. Mrs. MacMillan, Frances Graham, Kriemhilda, Mrs. Marshall and Sweet Briar are excellent varieties of the lighter shades, whilst Caradoc is a first-class yellow variety. (Silver-gilt Flora Medal.)

Messrs. HOBBS, LTD., Dereham, exhibited a very gracefully-arranged collection of cut Dahlias. Representative collections of Pæony-flowered and collarette varieties were displayed with sprays of Kochia scoparia in tall stands, and the spaces between the stands were filled with smaller receptacles containing fine Cactus blooms, also arranged with Kochia and Asparagus sprays. This fine collection contained many excellent varieties, and was attractively bor-

dered with pieces of cork, which was overhung with Isoplexis gracilis. (Silver-gilt Flora Medal.)

Mr. J. T. WEST, Tower Hill, Brentford, arranged a bright display of cut Dahlias, in which the Pompon varieties were the outstanding feature. These delicate flowers were shown in a great variety of colours and in good form. Daisy (a pretty terra-cotta variety), Little Joe (brown), Sunny Daybreak (chestnut and yellow), Darkest of All and Adelaide (pale heliotrope) were very good of their shades of colour. Amongst the Cactus varieties we noted Mrs. Brandt with broad florets, the bloom being 7 inches across. There was also a good selection of decorative and Pæony-flowered Dahlias, the chief being Le Colosse, Liberty, Lord Milner and Rembrandt. (Silver-gilt Banksian Medal.)

Messrs. T. S. WARE, LTD., Feltham, Middlesex, staged a collection of Dahlias, in which prominence was given to the Pæony-flowered and the Pompon varieties. The former type was represented by very large, stout-stemmed blooms, arranged in bamboo stands, with coloured sprays of hardy shrubs. Mrs. Ainslie (pink), Admiralty (buff, flushed with carmine), and Mrs. G. Gordon (a very large, Primrose-yellow with orange-coloured centre) were exceedingly good. Comedy, a yellow Cactus variety, striped and spotted with orange-red, was shown in good form, as also were Primrose Queen, H. L. Brousson (deep pink), and Joan of Arc (sulphur-yellow deepening to flesh pink). (Bronze Flora Medal.)

Mr. CHARLES TURNER, Slough, arranged a collection of cut Dahlias, consisting chiefly of the Pæony-flowered varieties. Eleanor (a large, deep-rose flower), Olivia (amber and rose), Princess Ida (white with the tips of the florets reflexed), Bayard (scarlet), and Sheila (a very erect-flowered deep rose) were the more recent sorts. (Silver Banksian Medal.)

Messrs. J. CHEAL & SONS, Crawley, exhibited fresh and good blooms of Dahlias in a novel and striking manner. These flowers were set up on semi-circular stands in their various sections. The miniature Cactus varieties at the end nearest the centre pathway were especially good, and the stand of single-flowered Dahlias also found admirers. The Cactus flowers, which occupied two stands, were all noteworthy, particularly Buttercup, Nellie Riding, Crepuscle, and Lydia. Half-a-dozen new single varieties were placed in a box at one end. These were Albattross (white), Madhi (deep maroon), Minerva, Theresa, Killarney, and Bridesmaid. (Silver Banksian Medal.)

Messrs. BAKER'S, LTD., Wolverhampton, had a tall stand filled with cut blooms of Pæony-flowered Dahlias, which contained the finest blooms of this decorative class. The most showy varieties were Paul Kruger, Red Indian, Geisha, Mrs. H. C. Holder, Romolo Piazzani (a delightful mixture of apricot and salmon), and the velvety-crimson Warrior.

Messrs. JAS. STREDWICK & SON, St. Leonards-on-Sea, showed several new Cactus Dahlias, of which the variety Miss Stredwick received an Award of Merit. Richard Box is a very fine, soft, yellow bloom, having long, incurved florets and great depth of bloom.

HARDY FLOWERS.

Mr. JAMES BOX, Lindfield, Sussex, arranged an exceedingly fine floral group on the floor against the side wall of the hall. The centre of the exhibit was composed of fine trusses of herbaceous Phloxes in rich, distinct colours. G. A. Stroehlein was the brightest of them all; Frau A. Buchner and Friefraulein Lassberg are two good white sorts; whilst General von Henstz, F. T. Maure, and Fort de France would be telling colours in the garden. The new varieties were Europe (white, with pink eye), America (large-flowered salmon-pink, with deep-pink eye), and Asia (a smaller flower of a heliotrope shade). There were fine stems of Helianthus sparsifolius, a plant which received an Award of Merit seven years ago. (Silver-gilt Banksian Medal.)

Mr. AMOS PERRY, Enfield, Middlesex, in their Water Lily exhibit, illustrated the unusual length of the hardy Nymphaea season. At the end of the Water Lily pool, a couple of large seed-bearing spikes of Gunnera scabra attracted considerable attention. (Silver Banksian Medal.)

Mr. G. REUTHE, Fox Hill Nurseries, Keston, Kent, staged a small collection of grey-floated and other Alpine plants. A pot plant of Sternbergia macrantha, Satureia montana (a tiny, Rose-

mary-like plant), Gypsophila sundermanniana (a dense-growing Alpine), Hypericum aegyptium (a valuable Little St. John's Wort, just now commencing to bloom), Dryas lanata (still in bloom), and Pratia laetifolia (a very prostrate plant bearing narrow-petalled, white flowers) were amongst the uncommon plants exhibited.

Messrs. GEO. BUNYARD & CO., LTD., Maidstone, Kent, staged cut sprays of Michaelmas Daisies, chiefly of the blue shades of colour. Aster Amellus macrantha major, and Amellus bess-arabicus were the finer varieties.

The Misses HOPKINS, Shepperton-on-Thames, exhibited a few Alpine plants, chiefly in flower, arranged in shallow, cork-covered boxes.

AWARDS OF MERIT.

Amaryllis Parkeri (hyb.).—This is assumed to be a hybrid between Brunsvigia Josephinae and Amaryllis Belladonna. It differs in the form of the umbel from A. Belladonna, being quite circular and carrying some 30 flowers and buds. The flowers are of a deep rose shade, with white and orange at the base and orange-coloured on the exterior of tube. It is distinct from the ordinary A. Belladonna, possesses greater vigour, and has a stem some 3 feet in length. It was shown by LEOPOLD DE ROTHSCHILD, Esq., C.V.O., Gunnersbury House, Acton, W. (gr. Mr. James Hudson; V.M.H.). This plant is almost identical with the plant known as the Kew variety of A. Belladonna, which is also A. Parkeri, being from the same cross and varying only in being a better rose colour with less orange shade. Mr. Hudson informed us that his Amaryllis was shown as A. Belladonna "Kew variety" (see fig. 101), because it was received under this name from an amateur cultivator in New Zealand some six years ago. This is the first season of its flowering at Gunnersbury House. It may prove to be Mr. Van Tubergen's plant, which he obtained from crossing Brunsvigia with Amaryllis Belladonna. Mr. Tubergen's hybrid formed the subject of a Supplementary Illustration to *Gardeners' Chronicle*, January 23, 1909.

Amaryllis Parkeri alba.—This plant is evidently a variety of A. Parkeri. It possesses a fine umbel, a large number of flowers, almost pure white but with the same orange shading at the base as in the flower described above. It is a most striking and distinct novelty. The origin was not stated, but everything points to the same cross. This was shown as A. Belladonna Kewensis alba by Mr. WORSLEY, Mandeville House, Isleworth.

Brunsvigia Sanderae alba. In this case the umbel resembled typical A. Belladonna in formation, being one-sided rather than globular. This plant is also the result of a cross between Brunsvigia and Amaryllis Belladonna, but there is not sufficient information to determine whether the parentage is the same as in the case of A. Parkeri. Exhibited by Messrs. SANDER & SONS, St. Albans. Only on one occasion has any award been previously made to any form of Amaryllis Belladonna; this was made to A. Belladonna maxima on August 13, 1901.

Dahlia Maurice Rivore (collarette) (see p. 214).—Shown by Messrs. HOBBS, LTD., Dereham.

D. Union Jack (single).—A scarlet and white bloom, shown by Mr. CHAS. TURNER, Slough.

Caranation "White Wonder."—A pure-white, perpetual-flowering variety, with stout, healthy foliage and long flower-stems, and possessing a very pleasant perfume. Shown by Messrs. ALLWOOD BROS., Wivelsfield Nurseries, Haywards Heath.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., F. Sander, R. G. Thwaites, A. A. McBean, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, C. H. Curtis, W. H. White, Gurney Wilson, W. Bolton, de B. Crawshaw, and H. G. Alexander.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver-gilt Flora Medal for a very fine group, including a showy batch of Lælio-Cattleyas. In the centre were three fine specimens of Vanda Sanderiana, one of them with three spikes, and another with exceptionally good rose flowers. Lælio-Cattleya Damsel (L.C. callistoclossa), L. Crispia, and C. Walter Gott, of which 15 pretty forms were shown; L. C. Phoenix (Hy.

Greenwood \times aurea), L.-C. Colmanii, L.-C. exquisita (C. Shakespeare \times L.-C. Elstedeana), a charming flower with greenish-primrose sepals and petals and reddish-violet front to the lip, were all attractive flowers. Lælio-Cattleya Britannia (L.-C. Canhamiana \times C. Mossie) was a handsome flower, the broad-frilled, rose-veined lip being a distinct feature.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for a small but select group of showy Orchids, including their new Sophro-Lælio-Cattleya Jeanette (see Awards), Lælio-Cattleya Anthela, and other Lælio-Cattleyas; several good Brasso-Cattleya Digbyano-Warszewiczii, Brasso-Lælio-Cattleya Thompsonii with large, white flowers tinged with lilac, the lip having a green disc with a purple line in front; Cattleya Rhoda, a remarkably fine C. Gaskelliana alba, a fine specimen of Miltonia Bleuana nobilior, and Cynoches maculatum.

SAMUEL LARKIN, Esq., The Ridgways, Haslemere (21, Mr. Hales), was awarded a Silver Bank-

awarded a Silver Banksian Medal for an effective group, in which a number of their pretty Cattleya iridescens (bicolor \times Eldorado) were the principal feature. The fragrant flowers, formed like C. Iris, varied in tint from rose with purple lip to bronzy rose and yellow with crimson lip, one yellow form being specially good.

Mr. E. V. Low, Vale Bridge, Haywards Heath, was awarded a Silver Banksian Medal for a group of good things, among which were noted Cattleya Ena var. E. V. Low, a pretty flower with yellow sepals and petals with a bronzy veining, and purple lip; a good form of C. Thurgoodiana Vale Bridge variety, resembling C. Hardyana; some good forms of C. Adula, C. Gaskelliana alba, the singular Bulbophyllum grandiflorum, B. guttatum, Cirrhopetalum appendiculatum and others.

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. J. M. Black), showed an interesting selection of pretty hybrids, including several good Cattleya Adula, one having the sepals and petals of old-gold tint, the pure-white Cattleya

Sir JEREMIAH COXMAN, Bart., V.M.H., sent a very remarkable Bulbophyllum of the B. mandibulare section, with reddish-brown flowers, said to have been imported from the Philippines, and resembling B. orthoglossum.

AWARDS.

FIRST-CLASS CERTIFICATE.

Sophro-Lælio-Cattleya Jeanette (L.-C. Jeanette \times S. grandiflora), from Messrs. CHARLESWORTH & Co., Haywards Heath.—A very brilliant and beautiful flower, comparable to the handsome Sophro-Cattleya Doris "Cobb's variety" in size and shape, and with broad petals like the handsome S.-C. Queen Empress (C. Mossie \times S. grandiflora) of Messrs. Veitch, flowered in 1899. The present hybrid shows the influence of the C. Mossie parent of L.-C. Martinetti, the other agent, L. tenebrosa, being almost suppressed. The flower is of a bright vermilion red, with a darker veining slightly tinged with rose, a faint flush of the same colour appearing on the margins of the petals. The base of the lip is pale yellow, the front veined with ruby-red.

CULTURAL COMMENDATION

to Mr. W. H. White, Orchid grower to Sir TREVOR LAWRENCE, Bart., K.C.V.O., for a strong specimen of Dendrobium glomeratum with over 30 rose-coloured flowers with orange-coloured labellums.

Fruit and Vegetable Committee.

Present: Owen Thomas, Esq. (in the Chair); also Messrs. W. Bates, H. H. W. William, G. Woodward, W. Pope, A. Dean, G. Reynolds, J. Harrison, A. R. Allan, W. Pourpart, H. S. Rivers, and A. W. Metcalfe.

The Superintendent, Mr. S. T. WRIGHT, exhibited from the Society's gardens at Wisley bunches of Alnwick Seedling and Directeur Tisserand Black Grapes for the Committee's opinion, as the two sorts seemed to be identical. No mention is made of Directeur Tisserand in the *Fruit Manual* or in *Barton's Vines and Vine Culture*, and no description is available. The vines will be inspected by a sub-committee on the 19th inst.

Mr. G. WOODWARD, Barham Court Estate Gardens, Maidstone, submitted for taste very large fruits of Dr. Jules Guyot Pear. The fruits were juicy, but lacked flavour.

LEOPOLD DE ROTHSCHILD, Esq., Glimmerbury Park, Acton (gr. Mr. J. Reynolds), showed a collection of 10 varieties of Nectarines. They were not large fruits, although of excellent quality. The ripest were Spenser, Byron, Humboldt, Darwin, Stanwick, Elruge, and Pineapple. (Silver Banksian Medal.)

H. B. BRANDT, Esq., Capenor, Nutfield (gr. Mr. T. Heron), staged 27 bunches of Grapes. They included (white) Muscat of Alexandria and Golden Queen, and (black) Appley Towers (very excellent bunches), Alnwick Seedling, Black Alicante, and Lady Downes. (Silver Knightian Medal.)

Messrs. W. PAUL & SON, Waltham Cross, set up a collection of some 30 admirably grown and well-fruited Apple, Pear, and Plum trees in pots. Of Apples there were good specimens of Sandringham, Newton Wonder, Chelmsford Wonder, and Cox's Pomona. Pears were represented by Beurré Alexandre Lucas, and Catillac. The Plums included Jefferson, Cox's Golden Drop, Magnum Bonum, Greengage, Grand Duke, Prince Englebert, Victoria, Monarch, and Pond's Seedling. (Silver Knightian Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, showed a collection of fruit trees in pots, embracing Apples, Pears, and Plums, as a background to a collection of Apples in dishes. The finest of these were Peasgood's Nonesuch, Newton Wonder, Lord Derby, Jolly Beggar, Bramley's Seedling, Cellini Pippin, Royal Jubilee, Charles Ross, Rival, Gascoyne's Scarlet Seedling, Cox's Orange Pippin, Bismarck, and Lane's Prince Albert. (Silver Banksian Medal.)

Mr. STAPLETON, headmaster and garden instructor at the Purfleet Council Schools, Essex, staged a very interesting collection of hardy fruits grown on a special fruit plot at the schools by the boys under his instruction. The trees were planted in the autumn of 1909, hence they had fruited in their second year. There were 21 dishes of Apples and nine each of Plums and Pears. The finest Apples were those of Lord Derby, New Hawthornden, Beauty of Kent,



FIG. 101.—AMARYLLIS PARKERI.

Showing the difference between A. Barkeri to the right and A. Belladonna to the left (much reduced).

(See p. 210)

sian Medal for a well-arranged group of Lælio-Cattleyas, Cattleyas, and others. Specially noteworthy were Phaius Ashworthianus, with bright-yellow flowers, both plant and flowers closely resembling Phaius cymbellum chardvariance; the rare Dendrobium MacCarthyi, and a fine plant of Phalaenopsis violacea.

Messrs. STUART LOW & Co., Bush Hill Park, secured a Silver Banksian Medal for a group with many good specimens of the yellow Oncidium varicosum arranged at the back. Cattleya Pittiana, several C. Iris and C. Adula, C. Forbesii, C. Luddemanniana, Cypripedium Elatior of fine quality; Dendrobium MacCarthyi, D. sanguinolentum and its rare white variety; a selection of Vanda corallina, Cynoches maculatum, Miltonia Rozzii album, Cirrhopetalum Amesianum, and the pretty little Sigmatoxalis Eliae were also noted.

Messrs. HASSALL & Co., Southgate, were

Dusseldorferi Undine, several C. Euphrasia, and a finely coloured Lælio-Cattleya Blethleyensis.

W. P. BURKINSHAW, Esq., Hesse, sent Cypripedium Venus Hesse variety, with a snow-white, wax-like flower of great beauty.

Lady AUDLEY NIELD, Girdleton, Chippenham, showed Cypripedium Fascination (Fascinator \times insigne Herefield Hall), a large and well-formed flower with the general aspect of C. Leeannum, but with very broad petals; also C. Dallas (Curtisii exquisitum \times Fairrieannum).

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, sent Cattleya Carmen (Luddemanniana \times Warszewiczii), a showy, light rose flower of good shape, with a ruby-purple front to the lip.

H. S. GOOSDON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), sent Lælio-Cattleya Colmanii Goodson's variety, and a good example of Cypripedium Lord Derby.

Lady Sefton, Bismarck, Allington Pippin, and Summer Pippin. The best Plums were Admiral, Jefferson, Grand Duke, and Washington, whilst the best Pears were Glou Morceau, Durondeau, Souvenir du Congrès, and Emile de Heyst. (Silver Banksian Medal.)

LADY COWPER, Panshanger, Hertford (gr. Mr. R. Staward), exhibited a singularly comprehensive collection of Onions in 50 baskets. These were fine, well-matured bulbs of Ailsa Craig, Sutton's A.L., Giant Rocca, Sutton's Perfection, Magnum Bonum, Red Tripoli, Trebons, Improved Reading Globe, The Queen, Early Gem, Crimson Globe, and others. Some of the plants were raised out-of-doors, and these were the smallest. (Silver-gilt Knightian Medal.)

AWARD OF MERIT.

Apple Charles Eyre.—A seedling variety raised at Welford Park by Mr. CHARLES ROSS. The variety is evidently one of his earlier seedlings. The tree is a robust, sturdy grower, large in leaf and with short-jointed wood. The pale-green fruit is of large size; the shape is conical, and the flesh firm. The specimens shown weighed from 12 to 14 ounces each, and they were grown on trees that had been neither watered nor manured this season. The variety promises to provide one of the finest culinary Apples in cultivation. Shown by Mr. W. POPE, Welford Park Gardens, Newbury.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

SEPTEMBER 6, 7, 8.—The 99th annual exhibition of this society was held on the foregoing dates in the grounds of the Scottish National Exhibition at Kelvingrove, Glasgow. This year's show marks an improvement over anything previously held in Glasgow; in all departments the exhibits were of great excellence. Cut flowers were shown in large numbers. In the fruit and vegetable classes there was a keen competition from some of the leading growers. Trade exhibits were numerous. Five large marquees were erected, but they provided insufficient room. The entries numbered 1,650, as compared with 1,100 last year. This satisfactory state of affairs is the result of the wonderfully fine summer experienced in the west of Scotland this season, coupled with the additional prize money offered. The pathways between the stages were narrow, and the visitors were much inconvenienced, whilst it was almost impossible to critically examine the exhibits. It is to be hoped that, on the occasion of the Centenary Show next year, the council will make more suitable arrangements.

GROUPS OF PLANTS.

Four entries were forthcoming in the class for a miscellaneous group of plants, arranged in a space 15 feet by 10 feet. No particular originality was noted in either of the groups. The 1st prize was awarded to W. BEATTIE, Esq., Milngavie (gr. Mr. Andrew Kelly), for an arrangement which appeared somewhat heavy and crowded. The plants consisted of Begonias Gloire de Lorraine and Caledonia, together with Celosias and Gloxinias, these being interspersed with Palms and Junipers. The 2nd prize was awarded to T. MACDONALD, Esq., Bearsden (gr. Mr. T. Muir), for a well-arranged group of Lilliums, Celosias, Cordylines, and Codieums. Mrs. ALEX. ROSE, Downhill (gr. Mr. J. Templeton), was placed 3rd with an arrangement of Lilliums and Begonias.

Important prizes were offered for a group of stove or greenhouse plants, arranged on a table to occupy a space of 10 feet by 6 feet. Col. J. OUTRAM, Craigend Castle, Milngavie (gr. Mr. A. Davidson), was placed 1st for a collection consisting principally of Palms, Codieums, Cordylines, and Ferns.

SPECIMEN PLANTS.

For four stove or greenhouse plants and for four ornamental foliage plants Mr. A. HARDY, Glasgow, was placed 1st. In addition to the prizes for 12 plants for table decoration, a medal was also offered by the Highland and Agricultural Society of Scotland. A very pretty arrangement by MALCOLM CAMPBELL, LTD., Glasgow, was awarded the 1st prize; 2nd, Professor BARR, Milngavie (gr. Mr. Jas. MacKinnon); and 3rd by Col. J. OUTRAM, Craigend Castle. Ferns, Pelargoniums, Begonias, and Petunias were all good specimens.

CUT FLOWERS.

There were nine classes for Sweet Peas, the entries ranging from 9 to 22 in the various classes. In that for a collection of Sweet Peas to occupy a space of 9 feet by 5 feet there were exhibited splendid collections. Mr. JOHN FLETCHER, Aucheneath, Lanark, won the 1st prize easily; his exhibit included magnificent examples of Sunproof Crimson, Masterpiece, and Mrs. Hugh Dickson. Messrs. THYNE & SON, Dundee, were placed 2nd, and Mr. JAMES BROWN, Catrine, 3rd. In the class for 12 vases Mr. JOHN SMELLIE, Busby, was the 1st prize-winner, the flowers appearing to be on the coarse side; 2nd, Mr. GEORGE BOWNESS, nurseryman, Busby, for a very even lot.

Gladioli were exceptionally well shown, the flowers being in perfect condition. The 1st prize for 24 spikes was won by Messrs. GEORGE MAIN & SON, Prestwick. They showed Galliene, Snow-wreath, and Helen in grand form; 2nd, Messrs. A. CAMPBELL & SON, Gourcock. Chrysanthemums were another strong feature, numerous classes being provided for these flowers. In the principal class for a collection (not disbudbed), arranged in a space of 9 feet by 5 feet, Mr. JOHN SMELLIE, Busby, was placed 1st, Mr. G. BOWNESS 2nd, Messrs. M. CAMPBELL & SONS 3rd, and Messrs. RICHARDSON & STEWART, nurserymen, Giffnock, 4th.

Exhibits of hardy herbaceous flowers were numerous and fine. In the principal class for a display 10 feet by 5 feet there was a strong competition. The 1st prize was awarded to W. C. STUART, Esq., Rutherglen (gr. Mr. James Miller), for fresh blooms; 2nd, Messrs. J. COCKER & SONS, nurserymen, Aberdeen. Important prizes, including a medal, were offered for a collection of flowers cut from the open border and arranged on a space 8 feet by 5 feet. Here again there was strong competition, and the 1st place was secured by Mr. CHARLES PARTISON, Linwood; 2nd, Mrs. F. HAMILTON, Kirkcovan (gr. Mr. W. Young).

There were numerous classes for Dahlias, Carnations, Phloxes, Marigolds, Pansies, Violas, Asters, Annuals, and Begonias, also for bouquets, wreaths, and other floral arrangements.

Roses were a weak feature of the show; although there were 13 classes for these flowers and all were exceptionally well contested, the blooms were hardly up to the high standard met with in the other sections. For a collection of Roses Messrs. COCKER & SONS, Aberdeen, were placed 1st, their blooms of Lyon Roses being particularly well coloured. Mr. W. FERGUSON, Dunfermline, was awarded the 2nd prize, Mme. Abel Chatenay being the most outstanding variety in this collection.

The best collection of 36 Rose blooms was shown by Mr. HUGH DICKSON, Belfast.

Decorative Roses were best shown by Messrs. DAVID ROBERTSON & SON, Helensburgh.

DECORATED DINNER TABLES.

There were 10 exhibits in the class for a decorated dinner table, and each displayed tasteful arrangement. The 1st prize was awarded to the Earl of HOME, Bothwell Castle (gr. Mr. W. P. Bell), who had a very graceful arrangement of pink Carnations and lavender-coloured Sweet Peas, coupled with trails of Selaginella. The 2nd prize was won by T. G. BISHOP, Esq., Helensburgh (gr. Mr. J. Hood), who employed Roses and sprays of Francoa ramosa.

FRUIT CLASSES.

DESSERT TABLES.—The schedule called for a table of dessert fruit, 10 feet by 4 feet 6 inches, decorated with plants in pots not exceeding 5 inches, cut flowers and foliage being optional, the table to contain not more than 16 dishes in all, and four bunches of Grapes (one bunch constituting a dish), at least one of these to be white. Prizes of £6 for 1st and £3 10s. for 2nd place were offered in this class, with £2 and £1 10s. respectively for decoration. The 1st prize for fruit was won by the Duke of PORTLAND, K.G., Welbeck Abbey, Nottinghamshire (gr. Mr. J. Gibson), with a magnificent collection; splendid examples of Melons, Grapes, Pears, and Apples were staged. The 2nd prize was awarded to Lord ELPHINSTONE, Carberry Tower, Musselburgh (gr. Mr. D. Kidd), who showed particularly good Grapes. For the decorations employed Lord ELPHINSTONE was placed 1st and the Duke of PORTLAND 2nd. The premier decoration was of pink Carnations relieved with sprays of Selaginella.

COLLECTIONS OF FRUIT.—The principal class was for 12 dishes of fruit, in 12 distinct varieties, not more than two varieties of any kind. There were four entries, and the principal award was won by the Duke of PORTLAND for a most meritorious collection. The 2nd prize was won by A. A. H. SPEIRS, Esq., Houston (gr. Mr. James Brown), and the 3rd by J. G. THOMSON, Esq., Norwood, Alloa (gr. Mr. Jas. Small). The 1st prize, in addition to the cash award of £5 3s., carried with it the "Hunter Memorial Medal," presented by Messrs. Austen and M'Aslan, seedsmen, Glasgow. The next important prize in this section was offered for a collection of six dishes of fruit, one bunch of Grapes to constitute a dish. The Duke of PORTLAND again secured the 1st prize, being followed by A. R. BROWN, Esq., Shandon (gr. Mr. John Finnie), and Sir C. FERGUSON, Bart., Dailly (gr. Mr. A. T. Harrison) in this order. There were eight competitors in this class.

GRAPE.—The leading class in Grapes was for eight bunches, not more than two bunches of any variety, each exhibit to be decorated with plants and flowers. The 1st prize consisted of a silver cup, with £8 in cash. This was awarded to the Right Hon. Lord ROWALLAN, Kilmairs Castle (gr. Mr. James Dixon), who was awarded 60½ points. 2nd, the Trustees of the late Miss CAMPBELL, Ascog, Bute (gr. Mr. David Halliday), with 54½ points.

Black Hamburg.—The best two bunches of Black Hamburg Grapes were shown by A. R. BROWN, Esq., Shandon (gr. Mr. J. Finnie), W. T. MACLELLAN, Esq., Helensburgh (gr. Mr. H. MacSkimming) and F. C. STEWART, Esq., Skelmorlie (gr. Mr. Peter Young) being 2nd and 3rd respectively.

Muscat of Alexandria.—In this class the premier prize was awarded to Mr. W. T. MACLELLAN, Esq.; 2nd, A. R. BROWN, Esq.

Black Grapes other than Black Hamburg.—There were numerous exhibits in this class; the 1st prize was secured by J. G. THOMSON, Esq., Alloa, with Madresfield Court of superb quality; 2nd, the Trustees of the late Miss CAMPBELL.

The best collection of 12 varieties of Apples, four fruits of each, was shown by the Duke of PORTLAND, Mr. THOS. SMITH, Kilmarnock, being placed 2nd, and R. H. PLOWDEN, Esq., Strachur (gr. Mr. John Campbell), 3rd. There were seven entries in this class. The Highland and Agricultural Society of Scotland offered three prizes for a collection of 12 dessert Apples in three varieties, four of each sort. The Duke of PORTLAND again secured the premier place with grand examples of Allington Pippin, Cox's Orange Pippin, and Worcester Pearmain. The Trustees of the late Miss CAMPBELL were placed 2nd, and J. NELSON, Esq., Castle Douglas (gr. Mr. J. M. Stewart), secured 3rd. For 12 culinary Apples, in three varieties, four fruits of each sort, the Duke of PORTLAND was again the 1st prize-winner. The varieties staged were Peasgood's Nonesuch, Gascoyne's Scarlet Seedling, and Emperor Alexander. 2nd, J. NELSON, Esq.

The most important class for Pears was for a collection of six varieties, four fruits of each. The Duke of PORTLAND was an easy 1st prize winner, and he was followed by Miss HAMILTON, Royelle, Ayr (gr. Mr. Andrew Harvey) and H. J. YOUNGER, Esq., Kilman (gr. Mr. R. Greenlaw), in this order. For 12 Pears in two varieties, six of each, Mr. JOHN RUSSELL, Prospect House, Newton Mearns, was an easy 1st.

COLLECTIONS OF VEGETABLES.

There were no fewer than four groups of prizes, each consisting of 1st, 2nd, and 3rd, for collections of vegetables, and there were numerous entries in each class, with the result that the exhibits of vegetables were the finest seen at any previous show in Scotland this season. For Messrs. Sutton and Sons' prizes of £5, £3, and £2, for a collection of 13 kinds, there was strong competition. The Duke of PORTLAND was placed 1st, his Onions, Leeks, and Celery being specially noteworthy. The 2nd prize was awarded to STEPHEN MITCHELL, Esq., Kippen (gr. Mr. Chas. Shaw). The 3rd prize was secured by Mr. JOHN MILLAR, Stranraer.

Similar prizes were offered by the Society for an almost identical collection. The winners were STEPHEN MITCHELL, Esq., 1st; Lady ORR EWING, Port Patrick (gr. Mr. Henry Jowett),

2nd; and the Earl of HOWE, Bothwell Castle (gr. Mr. W. P. Bell), 3rd. Messrs. Ed. Webb & Sons, Stourbridge, offered prizes for a collection of nine varieties. In this case the 1st prize was won by A. A. H. SPEIRS, Esq., Houston.

There was a good competition in the classes for Potatoes, some admirable tubers being shown. Many prizes were provided for all classes of vegetables, and the principal awards were all secured by exhibitors of high quality.

NON-COMPETITIVE EXHIBITS.

Messrs. SUTTON & SONS, Reading, displayed a magnificent collection of Melons, vegetables, Gloxinias, and cut flowers. They showed splendid specimens of Ailsa Craig Onions, some of the bulbs weighing 3 lb. each. Several varieties of Melons, not yet in commerce, and evidently of great merit, were also shown. Gloxinias raised from seeds sown on 11th April were very fine. (Gold Medal.)

Messrs. DOBIE & CO., Edinburgh, put up a splendid display of all sections of Dahlias, comprising Cactus, Show, Pompon, Pæony, Single, Decorative, and Collarette varieties, many of these being seedlings raised in their nurseries. Sweet Peas and early-flowering Chrysanthemums completed a grand collection of cut flowers. (Gold Medal.)

Messrs. W. CUTBUSH & SON, Highgate, London, exhibited a collection of their specialities in vegetables, all the specimens being remarkably well grown. (Gold Medal.)

Messrs. ED. WEBB & SONS, Stourbridge, also showed a splendid display of vegetables, attractively arranged and staged. (Gold Medal.)

Messrs. MALCOLM CAMPBELL, LTD., of Glasgow, staged a table of fruit, all of superb quality. Grapes, Peaches, and Melons were remarkably fine. (Gold Medal.)

Messrs. GIBSON & CO., Leeming Bar, put up an exhibit of cut herbaceous flowers—Roses, and Phloxes. (First-class Certificate of Merit.)

Messrs. BLACKMORE & LONDON, Bath, showed splendid Begonias. (Gold Medal.)

Mr. HUGH DICKSON, Belfast, exhibited Roses.

Messrs. YOUNG & CO., Cheltenham, had a stand of perpetual-flowering Carnations.

Mr. WILLIAM LEITCH, Glasgow, exhibited a table of flowering and foliage plants in variety. (Gold Medal.)

Messrs. AUSTIN & MCASLAN, Glasgow, also displayed a collection of flowering plants arranged splendidly. (Gold Medal.)

Messrs. CLIBRANS, Altrincham, showed a collection of their various strains of vegetables. (Gold Medal.)

Mr. D. G. PHILLIPS, Glasgow, staged a collection of flowering plants.

Messrs. WILLIAMSON, GEMMELL & CO., Glasgow, also staged pot plants in variety.

Messrs. CUNNINGHAM, FRASER & CO., Edinburgh, exhibited hardy herbaceous plants.

Mr. CHAS. YOUNG, Kinnishead, showed a group of Lilliums, Hydrangeas, and Begonias.

Messrs. ALEX. LEITCH & SON, Bournemouth, exhibited Violas in all the best varieties.

Mr. QUENTIN McFARREN, Lew Junction, also showed Violas, French Marigolds, and Chrysanthemums.

NATIONAL DAHLIA.

SEPTEMBER 7, 3. The best of the two shows arranged by the National Dahlia Society for this year was held at the Crystal Palace on these dates. On the opening day upwards of 110,000 persons visited the Crystal Palace, but this large attendance was far from being a cause of congratulation to the Dahlia Society. Nearly all day there was a dense stream of visitors passing through the building, rendering a critical examination of the exhibits a matter of extreme difficulty. At times the attendants at the various trade stands were carried along with the crowds. As was only to be expected in this year of drought, the quality of the blooms was below the standard of the preceding years, yet there was much to admire, and if many of the blooms were somewhat lacking in size this was compensated for by brilliance of colour.

In the amateurs' classes the competition was below the average, but the entries in the trade section had increased 50 per cent. By awarding a certificate to a Collarette Dahlia the Society has now officially recognised this type of the flower. Many other novelties were shown, but only two other blooms received awards. With

the exhibitors the most popular Cactus blooms were the brightly-coloured H. H. Thomas, and Glory of Wilts, the splendid yellow variety; these are undoubtedly the finest blooms of their respective classes. The Society was again indebted to Mr. Caseton, the Superintendent of the Palace grounds, for foliage plants, which materially assisted in decorating the large conservatory where the exhibition was held. The secretary, Mr. Hawes, supervised the arrangements, which were carried out in an admirable manner.

NURSERYMENS' CLASSES.

SHOW AND FANCY VARIETIES.—Mr. JOHN WALKER, Thame, Oxford, was the only exhibitor in the class for 48 blooms of Show Dahlias, distinct, and was awarded the 1st prize for fresh, well-coloured flowers, though slightly uneven in size. The largest blooms measured $4\frac{1}{2}$ inches across, and were proportionately deep. The best varieties were William Powell (rich yellow), J. T. Saltmarsh (yellow, tipped with chestnut), J. Nicholson (lilac, shaded with pink), F. W. Girdlestone (dark self), Prince of Denmark (still darker), Mrs. C. Noyes (terra cotta), Perfection (deep orange), Imperial (claret), Bloodhound (of quite a sanguinary shade), and Harrison Weir (yellow fading to buff). This was a fine collection, and in this year of drought it would have been a difficult matter to stage a better exhibit of 48 blooms.

There was no competition in the class for 24 Show Dahlias, whilst in the class for 18 blooms, distinct, of Fancy Dahlias Mr. JOHN WALKER, Thame, Oxon, was again the only competitor. This exhibitor's collection was a very fine one, the back row blooms being almost perfect. From this exhibit we selected John Forbes (fawn, striped with maroon), William Sheldon (lemon-yellow, tipped with blush), Mrs. J. Downie (orange, striped with scarlet), Matthew Campbell (apricot, striped with crimson), Dandy (orange, striped with crimson), and Plutarch as being the most noteworthy varieties.

Exhibitors in the foregoing classes were not permitted to enter in the class for 12 blooms of Show and Fancy Dahlias, intermixed. Messrs. C. CARRINGTON & SON, Vicarage Avenue, Derby, obtained the 1st prize with a dozen very fine blooms. Perfection (orange), Shottisham Hero (pale purple, fading to a very light shade), Duchess of York (lemon, veined with flesh-pink), William Keith (maroon), Emperor (large florets of similar colour), Thomas Saunders (yellow), Harry Keith (claret), and R. J. Rawlings (a very fine yellow) were the finest varieties. 2nd, Messrs. J. CHEAL & SONS, Crawley, with fresh, small blooms, Crimson King, Thos. Pendered (yellow), and Mrs. W. Slack (heliotrope tints), being especially good.

CACTUS VARIETIES.—A Silver Challenge Cup was offered in the class for 18 varieties of Cactus Dahlias in bunches of six blooms. There were only two exhibitors, and Messrs. JAS. STREDWICK & SON, St. Leonards-on-Sea, again won the handsome trophy. Their splendid display included Mrs. Douglas Fleming (a creamy-white bloom with numerous narrow incurving florets) raised by the exhibitor, which is the finest white Cactus Dahlia to date, Miss Stredwick (see Awards), Red Admiral (a very large bloom of a rich scarlet colour), Mrs. Mills (bright purple with long, pointed florets), Dr. Roy Appleton (a fine, straight petalled bloom of pale lemon colour maturing to salmon), Marquis, Uranus (see Awards); splendid flowers of a type notoriously difficult to grow to perfection, the red stripe seems bound to appear. Ixemia, and Mrs. Stephens. The 2nd prize was awarded to Messrs. J. CHEAL & SON, Crawley, whose collection contained some exceedingly fine blooms of the popular dark kinds.

Messrs. C. CARRINGTON & SON, Chippenhams, were awarded the 1st prize in the class for 24 Cactus Dahlias for a really good collection of rich and distinct coloured blooms. Their best varieties were Dreadnought, William Marshall, Advance (a very large bloom), Brigadier, Glory of Wilts, Marathon, and the large crimson Nelson.

There was only one competitor in the class for 12 garden Cactus Dahlias, to be arranged in a natural manner in vases with any hardy foliage. Messrs. J. CHEAL & SONS, Crawley, showed such varieties as Victory, Mrs. Landale, Mrs. Paton, Mrs. F. H. Cook, and Goldcrest, nicely arranged amidst sprays of Golden Privet and Asparagus.

POMPON VARIETIES.—To lovers of these delightful little flowers the Pompon Dahlias made a very interesting feature of the show. The number of blooms (10) required of each variety is sufficient to make a good display, and due regard was shown to the arrangement of the colours. Probably growers of this class of Dahlia have not experienced the difficulty of former years of keeping the blooms sufficiently small, but in any case Messrs. CHEAL & SONS, Crawley, put up a group of model flowers. The varieties which pleased us most were Nora (yellow, tipped with bronze), Elsa (white), Ideal (yellow), Emily Hooper (pale buff), Girlie (a pretty shade of mauve), Ganymede, Galatea (claret), Nerissa (soft rose, tinted with silver), and Darkest of All.

The Pæony-flowered Dahlias were shown with long, stout stalks, and attractively arranged with fruiting sprays of Barberry and Snowberry, Asparagus, Golden Privet, and various grasses. The 1st prize for six varieties, distinct, was won by Messrs. J. CHEAL & SONS. The lighter shades predominated, and the collection consisted of such varieties as South Pole (white), Bertha von Sutton (tinted flesh pink), Geisha (yellow and red), and King Leopold (yellow).

AMATEURS' CLASSES.

Many of these classes, from which trade growers were excluded, were contested much better than was the case in the previous section. The five guinea Silver Challenge Cup, offered for the best 24 blooms of Show or Fancy Dahlias, was awarded to Mr. G. DENSLEY, Nag's Head Hill, Bristol, for fine flowers which were harmoniously arranged. The finest specimens were Warrior (red), R. T. Rawlings (yellow), M. Hobbs (yellow), T. S. Ware (maroon), and J. T. West (pale buff, tipped with purple). 2nd, Mr. S. H. COOPER, The Hamlet, Chippenhams. 3rd, Rev. W. MARKS, Rowhams, Southampton.

There were five entries in a class for 12 Show Dahlias, and here Mr. DENSLEY also won the 1st prize; Maud Fellowes, H. Clark, Colonist, and Victor (very dark) were his finest blooms. 2nd, Mr. A. P. IRONSIDES, The Hamlet, Chippenhams, with J. Stephens, especially fine. 3rd, Mr. S. H. COOPER, who obtained the 1st prize in the class for 12 Fancy Dahlias, where he was the only competitor.

The 20 Silver Challenge Cup, presented by the Crystal Palace Company, is offered for the best six varieties of garden Cactus Dahlias, to be arranged with any suitable hardy foliage. The number of blooms of each variety permitted is not sufficient to enable the competitors to make any real decorative effect in the large vases provided by the Society, and, as a result, there was a too great predominance of foliage and grasses. The holder of the cup this year, the Rev. A. BRIDGE, Worth Rectory, Crawley, Sussex, arranged some exceedingly fine blooms, Hon. Mrs. Greville (yellow centre fading to buff), Arthur Pickard (pale yellow to flesh pink), and Snowdon, White Ensign, and Golden Eagle, the names denoting the colours, were especially good.

A Silver Challenge Cup was offered for the best exhibit of nine varieties of Cactus Dahlias to be shown in bunches of threes. Mr. F. GRINSTEAD, Beauport Park, Battle, Sussex, was the successful competitor, with some magnificent blooms. A seedling variety named Beauport Beauty was finely shown. This bloom is after the style of Golden Eagle, but has longer florets, and is lighter in the centre. 2nd, Mr. F. W. FELLOWES, King's Walden, Hitchin.

Mr. H. PEERMAN, Glencross, Nantwich, was awarded the 1st prize and the Crystal Palace Company's Silver Medal for the best collection of 24 Cactus Dahlias. This very fine collection contained Thos. Parkin, Joan of Arc, Gwendoline Tucker, New York, and Harold Freeman in especially good form. 2nd, Mr. JAMES BRYANT, Salisbury.

There were 10 exhibits in the class for 12 Cactus Dahlias, and here again Mr. H. PEERMAN deservedly obtained the premier award; 2nd, Mr. F. GRINSTEAD.

The single Dahlias, as shown in class 24, afforded but a poor impression of the grace and beauty of this type of Dahlia; the conventional style of showing them seems to be to strain each set of flowers to wires so that the blooms are rigidly equidistant. The Rev. A. BRIDGE, Crawley, was awarded the 1st prize with blooms which would have delighted the connoisseur.

Cineraria grower; they were so formal and perfect in shape.

The section restricted to amateurs who do not employ a regular gardener was, for the most part, keenly contested, and many fine blooms were to be seen. The Crystal Palace Company's medal, offered for a vase of 12 Dahlia blooms arranged with any hardy foliage, was won by Mr. GEO. DYSON, Plumstead.

OPEN CLASSES.

Messrs. J. CHEAL & SONS, Crawley, won the 1st prize in the Pompon Cactus class with a splendid collection of these delightful little flowers. This firm's best blooms were Sovereign, The Bride (a fine white flower), Mrs. H. B. Brandt (a lovely salmon-pink variety), Coronation (bright scarlet), Little Fred (greenish-yellow), and Gracie. 2nd, Mr. M. V. SEALE, The Nurseries, Sevenoaks.

Mr. H. PEERMAN, Glencross, Nantwich, won the 1st prize for six blooms of one variety of Cactus Dahlia with the brightly-coloured H. H. Thomas; Mr. M. V. SEALE followed closely with *Gloria of Wilks*.

Mr. J. WALKER was awarded the 1st prize in the class for six blooms of a Show or Fancy variety with the primrose-yellow William Powell.

Mr. SEALE was the only competitor in the class for a shower bouquet of Cactus Dahlias. He set up a very tasteful arrangement with the miniature Cactus "Gracie," Codium leaves and Asparagus. The same exhibitor was also the only competitor in the class for a basket of Dahlias; it would be difficult to conceive anything finer in its class than Mr. SEALE's splendid exhibit.

Mr. A. BROWN set up a light and tasteful vase of Pompon Dahlias, which received the Silver Medal. The Bronze Medal was won by Mr. SEALE.

The 1st prize, including a Bronze Medal offered for a collection of Fancy Single Dahlias, was awarded to Messrs. J. CHEAL & SONS, Crawley; 2nd, Mr. SEALE.

The collection of Fancy Cactus Dahlias, which won the 1st prize for Messrs. JAMES STREDWICK & SON, was exceedingly good, Orion, Uranus, and Magpie being especially noteworthy.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cactus Dahlia "Miss Stredwick."—A splendid bloom with long incurved florets, rosy-pink in colour with a lemon centre. Shown by Messrs. JAS. STREDWICK & SONS, St. Leonards-on-Sea.

Cactus Dahlia "Uranus."—A very large bloom of exceedingly good form; creamy-white ground, splashed with rosy-pink, and unusually free from thick colour stripes. Also raised by Messrs. JAS. STREDWICK & SONS.

Collarette Dahlia "Maurice Riviere."—With reddish purple petals and white collar. Shown by Messrs. HOBBIES, LTD., Dereham.

NON-COMPETITIVE EXHIBITS.

Messrs. HOBBIES, LTD., Dereham, set up a magnificent display of Dahlias of all kinds interspersed with *Kochia scoparia* and bordered with pieces of cork. Besides the best of the standard varieties this collection contained many novelties, the Collarette type being very prominent. (Large Gold Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, displayed a very fine assortment of Dahlias, which were arranged in vases of their different classes with foliage of *Aster ericoides*. This firm's new *Paony*-flowered Dahlias included a huge bloom, 7 inches across, of Madame J. Coissard, a showy crimson variety with a white base to the florets. (Gold Medal.)

Mr. M. V. SEALE, Sevenoaks, had a very attractive display, in which prominence was given to this season's novelties. Amongst the garden varieties we especially noted Masterpiece (salmon-pink with brighter tips; a stout-stemmed bloom), Magnum Bonum (a very large salmon-scarlet variety). (Gold Medal.)

Mr. JOHN WALKER, Thame, Oxon, arranged a fine collection of representative blooms; the best flowers were Dr. Roy Appleton (lemon-yellow, shading to salmon), New York (a huge bronzy-yellow), and C. E. Wilkins (pink overlaying yellow). (Gold Medal.)

Mr. J. T. WEST, Tower Hill Nurseries, Brentwood, showed many fine blooms of the different sections, including *Pride of Essex* (a splendid

yellow Cactus), Mary Purrier (crimson), Elf (rose, striped with crimson), and Sherlock (bronze). (Gold Medal.)

Mr. CHAS. TURNER, Slough, had a small but very select display. Prominent positions were given to such new *Paony*-flowered varieties as Eleanor (deep rose), Bayard (red), Sunstar (red and orange), and Lambert (bright red). (Silver-gilt Medal.)

Mr. JAS. B. RIDING, Chingford Nurseries, Essex, had a very striking collection which filled one length of stage. The cut blooms were well arranged in bamboo stands of various heights. (Silver-gilt Medal.)

Messrs. KEYNES, WILLIAMS & Co., Salisbury, displayed a number of seedling single varieties in a general collection. The best of their seedlings were Cornet (yellow Cactus), Cavalier (deep red), and Sunray (large yellow fading to buff). (Silver Medal.)

Messrs. JAMES CARTER & Co., Raynes Park, sent many fine blooms, amongst which we noted Geisha, Bertha von Sutton, Hampton Court (white, overlaid with rose), Colonel Cody (bronze), and Mrs. W. L. Ainslie (pink); of the *Paony*-flowered kinds, and Ruby Grinstead, Indomitable, and Snowden of the Cactus section (Silver Medal.)

ROYAL CALEDONIAN HORTICULTURAL.

SEPTEMBER 13, 14.—The autumn show of the above Society was held in the Waverly Market, Edinburgh, on these dates. Compared with the previous year's show, the entries showed an increase of 200. Exhibits of hardy fruit especially were very fine, and not for many years past has there been such a good display of finely-coloured Apples as on this occasion. The numerous non-competitive exhibits contributed largely to the success of the exhibition. Taken collectively, few finer September shows have been held in Edinburgh.

FRUIT CLASSES.

(Gardeners and Amateurs.)

In the class for a table of dessert fruit, 10 feet by 4 feet 6 inches, not more than 16 dishes selected from a list published in the schedule, there were three exhibits. The prizes were presented by the Corporation of Edinburgh, and there were separate prizes for fruit and for decorations. The 1st prize of £5 for fruit was awarded to the Earl of HARRINGTON, Elvaston (gr. Mr. J. H. Goodacre), the 2nd of £3 10s. to the Earl of WEMYSS, Gosford (gr. Mr. W. Galloway), and the 3rd of £2 to WHITELAIR REID, Esq., West Park (gr. Mr. Geo. McKinley). The 1st prize exhibit included Muscat of Alexandria, Muscat Hamburg, Black Hamburg, and Madresfield Court Grapes, Nectarine and Princess of Wales Peaches, Victoria and Albert Victor Nectarines, Washington and Cox's Orange Pippin Apples, Marguerite Marrillat and Pitmanstone Duchesse Pears, The Peer and Taunton Hero Melons, Brown Turkey Figs, and Reine Claude de Bayay Plums. The number of points awarded to the respective dishes was as follows:—

	Maximum No. of Points.	Points Awarded.
Grapes, Black	9	7
Grapes, Black	9	7
Grapes, Black	9	7
Grapes, White	10	7
Peaches (1)	8	6
Peaches (2)	8	6
Nectarines (1)	8	5
Nectarines (2)	8	5
Apples (1)	7	6
Apples (2)	7	5
Pears (1)	8	6
Pears (2)	8	7
Plums	6	5
Melons (1)	8	6
Melons (2)	8	5
Figs	7	5
Totals	123	99

The Earl of WEMYSS obtained 85 points out of a possible 124, and WHITELAIR REID, Esq., 74.

The Earl of WEMYSS was awarded the 1st prize for decoration with 20 points out of a possible 23; the Earl of HARRINGTON had 19, and WHITELAIR REID, Esq., 13 points, and were awarded the 2nd and 3rd prizes respectively.

COLLECTIONS OF FRUIT.

In the class for a collection of 12 dishes of fruit, decorated with flowers, to include not more than two dishes each of Grapes, Peaches, Nectarines, Apples, and Pears, and one dish each of other fruits, the Earl of HARRINGTON was the only exhibitor, and he was awarded the 1st prize. He showed: Grapes Madresfield Court and Muscat of Alexandria; Peaches, Lady Palmerston and Princess of Wales; Nectarines, Victoria; Apples, Gascogne's Scarlet Seedling and Cox's Orange Pippin; Pears, Louise, Bon of Jersey and Williams' Bon Chrétien; Plums, Pond's Seedling and Diamond; and Melon, Ring-leader.

There were two competitors in the class for a decorated collection of 12 dishes of fruit grown indoors, to include not more than two dishes of each kind (Grapes excluded), the Earl of HARRINGTON being placed 1st, and WHITELAIR REID, Esq., 2nd.

GRAPES.

The Scottish Challenge Trophy, valued at 50 guineas, presented by Mr. W. H. Massie, Edinburgh, was offered for eight bunches of Grapes, to include not more than two bunches of any variety. There were four exhibitors, three of whom had won the Trophy once. In addition to the Cup (which has to be won three times before it becomes the property of the competitor), the 1st prize included £6 in cash and a gold badge; the 2nd prize was £5, the 3rd £3, and the 4th £2. A decorated exhibit was required, and superior cultivation and finish in the fruits were of the greatest importance. Lord ROWALLAN, Rowallan, Kilmaurs (gr. Mr. Jas. Dixon), the winner last year, was placed 1st, the Earl of HARRINGTON 2nd, Sir HERBERT MAXWELL, Bart., Monreith (gr. Mr. S. Gordon), 3rd, and Lady ARMITAGE, Castle Huntly (gr. Mr. Jas. Besant), 4th. The bunches in the 1st prize collection and the points awarded were as follows:—

	Maximum No. of Points.	Points Awarded.
Muscat of Alexandria (1) ...	10	8
Muscat of Alexandria (2) ...	10	8
Madresfield Court (1) ...	9	6
Madresfield Court (2) ...	9	8
Black Hamburg (1) ...	9	7
Black Hamburg (2) ...	9	7
Muscat Hamburg (1) ...	9	7
Muscat Hamburg (2) ...	9	7
Totals	74	53

The Earl of HARRINGTON obtained 51 points out of a possible 74; Sir HERBERT MAXWELL 50 out of 70; and Lady ARMITAGE 44 out of 70.

In the class for four bunches of Grapes, distinct in which competitors in the champion class were not allowed to compete, Lord ELPHINSTONE, Carberry Tower (gr. Mr. D. Kidd), was awarded the 1st prize; CHAS. COWAN, Esq., Dalhousie Castle (gr. Mr. W. G. Pirie), the 2nd; and WM. FORBES, Esq., Callander Park, Falkirk (gr. Mr. J. Middleton), the 3rd.

The Earl of MAR and KELLIE (gr. Mr. W. J. Buchanan) was placed 1st for two bunches of Muscat of Alexandria; Colonel J. A. STEWART MACKENZIE of SEAFORTH, Brahan Castle (gr. Mr. W. Campbell), being 2nd; and the Earl of WEMYSS 3rd.

The Earl of WEMYSS showed the best two bunches of Black Hamburg; 2nd, the Earl of HARRINGTON; 3rd, Sir HERBERT MAXWELL, Bart. In the single-bunch classes, the 1st prize winners were as follows:—(a) Muscat of Alexandria, the Earl of MAR and KELLIE; (b) Black Hamburg, the Earl of HARRINGTON; (c) Black Alicante, H. NUNGALL, Esq., Melrose (gr. Mr. F. M. Urquhart); (d) Alnwick Seedling, Colonel GORDON, Castle Douglas (gr. Mr. J. Duff); (e) Gros Colman, Lady ARMITAGE; (f) Lady Downes, Lord ELPHINSTONE; (g) Madresfield Court, Lord ROWALLAN; (h) any other variety introduced since 1900, WM. FORBES, Esq., with Diamond Jubilee. Lord BALFOUR OF BURLEIGH (gr. Mr. J. J. Wann), won the 1st prize in the class for any black Grape not named above with the variety Gros Maroc. H. NUNGALL, Esq., was placed 1st for any white Grape not named above with Buckland Sweetwater; and Major THORBURN, Craighero, Peebles (gr. Mr. J. McNeill), was 1st for the black Grape with finest bloom with Apple Tower.

The Earl of HARRINGTON won the 1st prize in the class for a green or white-fleshed Melon with

the variety Countess, and he was also 1st for a scarlet-fleshed Melon with the variety Manchester Red.

CLAUD HAMILTON, Esq., Larbert (gr. Mr. J. Wood), showed the best dish of 12 Figs, staging the variety Brown Turkey.

The Earl of HARRINGTON excelled in the class for Peaches, having Sea Eagle; and he was also 1st for Nectarines with Albert Victor.

The Earl of STAIR, Oxford Castle (gr. Mr. B. Ness), showed the best dish of 12 Apricots, the variety being Moor Park.

HARDY FRUIT.

LORD HOWARD DE WALDEN, Suffolk Walden, Essex (gr. Mr. Jas. Vert), won the 1st prize in the class for 12 Gage Plums with the variety Reine Claude de Bavay; Col. GORDON, Threave House, Castle Douglas (gr. Mr. J. Duff), was placed 1st for 12 yellow Plums with the variety Jefferson, and he was also 1st for 12 red Plums, the variety being Pond's Seedling. H. NUNGALL, Esq., showed the best 12 purple-tinged Plums in the variety Monarch. Lord HOWARD DE WALDEN excelled in the class for a collection of dessert plums in four varieties, nine fruits of each sort, R. H. ELLIOT, Esq., Clifton Park, Kelso (gr. Mr. A. McKinnon), being 2nd, and WHITEHEAD, Esq., 3rd. In the similar class for a collection of culinary Plums Lord HOWARD DE WALDEN was again 1st, WHITEHEAD, Esq., being placed 2nd, and Mr. R. G. SINCLAIR, Congalton, Drem, 3rd. The best collection of Apples in 12 varieties, five fruits of each, ripe or unripe, was shown by Mr. J. LEE, Kingscroft, Cheshire; 2nd, Mr. R. G. SINCLAIR; 3rd, Mr. E. CADDICK, Caradoc, Ross, Hereford. In the class for a collection of Apples grown in Scotland in 12 varieties, five fruits of each variety, Col. GORDON was placed 1st, Mr. R. G. SINCLAIR 2nd, and Messrs. BELL, Rossie (gr. Mr. W. Nicoll), 3rd. The best collection of Apples in six varieties was shown by Mr. E. CADDICK, the 2nd prize being awarded to Mr. J. LEE, and the 3rd to Mr. WHITING, Cudenhall, Hereford. For six dessert Apples in two varieties, Lord HOWARD DE WALDEN was placed 1st, the 2nd prize being awarded to Col. GORDON, and the 3rd to Mr. R. G. SINCLAIR.

For a collection of Pears in 12 varieties, four fruits of each variety, Mr. WHITING was placed 1st, the Earl of WEMYSS 2nd. The best collection of Pears in six varieties grown in Scotland was shown by the Earl of WEMYSS, Mr. R. G. SINCLAIR being awarded the 2nd prize, and M. T. FLETCHER, Esq., Saltoun Hall (gr. Mr. R. Pow), the 3rd prize.

For four dishes of Apples grown in an orchard house Messrs. BELL, Rossie, were the 1st prize winners; 2nd, the Earl of HARRINGTON; 3rd, Lord HOWARD DE WALDEN. Miss HAMILTON, Ayr, showed the best four dishes of Pears grown indoors, I. NEILSON, Esq., Castle Douglas (gr. Mr. I. M. Steward), being 2nd, and Mrs. KAY, Dumfries, 3rd.

PLANT CLASSES.

The only competitor in the class (open only to gardeners and amateurs) for a group of miscellaneous plants arranged on the floor within a circle measuring 18 feet in diameter was JOHN HERDMAN, Esq., Murrayfield, Edinburgh (gr. Mr. James HERDMAN), and he was awarded the 2nd prize. For four stove or greenhouse plants in flower, Major THORNBURN was awarded the 1st prize, Mr. ALLAN SMITH, Peebles, the 2nd, and Mr. G. McKINNA, Rath, the 3rd prize. Major THORNBURN excelled in the class for one stove or greenhouse plant in flower. A. DRYBURGH, Esq., Gogar Park (gr. Mr. A. Findlay), won the 1st prizes in the Orchid classes. The Earl of HOME (gr. Mr. A. McMillan) showed the best four Ferns of exotic species, and J. HERDMAN, Esq., the best four Adiantum Ferns and the best Tree Fern. ALEX. COWAN, Esq., Penicuik (gr. Mr. J. Turnbull), was awarded the 1st prizes in the classes for four British Ferns and for nine dwarf hardy Ferns. Mr. J. BLACK, East Calder, showed the best Scolopendriums in a class for six plants.

The 1st prize-winners in the other classes for specimen plants were as follow:—(a) Six foliage plants (Palms excluded), the Earl of HOME; (b) six foliage plants in pots not exceeding 9 inches, Sir WILFRED LAWSON, Brayton (gr. Mr. A. Knight); (c) four Palms, Sir A. B. MILNE, Bart., Musselburgh (gr. Mr. A. McAndie); (d) two Palms, the Earl of HOME; (e) two Dracenas, Mrs. HUTCHISON, Carbourne (gr. Mr. J. Thom); (f) two

Codieums the Earl of HOME; (g) two Aralias, Mrs. HUTCHISON; and (h) two Coleuses Sir J. MURRAY, Edinburgh (gr. Mr. J. McIntyre).

In the classes for tuberous-rooted Begonias, Mr. R. BROWN, Dalkeith, won 1st prizes for six single-flowered varieties, three single-flowered varieties, and one single-flowered variety. He also won the 1st prizes for three double-flowered varieties and for one double-flowered variety. Mr. A. THOMSON, Dalkeith, won the 1st prizes in the classes for two Fuchsias and for one Fuchsia. Mr. G. McKINNA showed the best three plants of Zonal-leaved or plain-leaved Pelargoniums, and Mr. J. HERDMAN was 1st for three Ivy-leaved Pelargoniums. The Earl of HOME excelled in the class for six Chrysanthemums not disbudded. Sir J. MURRAY staged the best three pot plants of Lilies.

CUT FLOWERS.

For 12 Gladioli, distinct, the 1st prize was awarded to Mr. J. C. FORBY, Markworth, and the 2nd to Mr. A. BRYDON, Mr. J. STEWARD, jun., Alloa, excelled in the class for six Gladioli. Mr. J. WILSON, Leven, showed the best six spikes of Hollyhock. In the Dahlia classes, Mr. CHAS. SHAW, Kippen, won the 1st prize for 12 Cactus blooms; Mr. F. W. WOOD, Kinross, the 1st prize for six Peony-flowered blooms; Mr. J. PEARSON, Corstorphine, had the best six bunches of single varieties, and Mr. W. JENKINS the best six bunches of Pompon Dahlias.

SWEET PEAS.

Exhibits of Sweet Peas made a fine show. In the class for the 12 bunches, distinct, arranged with Sweet Pea foliage, 30 spikes in a bunch, there were 12 competitors. Mr. THOS. M. KIRKWOOD, Crieff, was placed 1st; Mr. JOHN HITCHER, Auchenhath, 2nd; and J. LOAN, Coldstream, 3rd. Seventeen growers entered in a class for six bunches, distinct, decorated with any kind of foliage. Mr. JAS. GARDINER, Duns, was awarded the 1st prize, Mr. K. H. COMRIE being placed 2nd.

There were six exhibits in the class for one bunch of 18 spikes of any variety not in commerce. The 1st prize was awarded to Mr. GEO. REID, Floral Cottage, Downfield, for a light rose seedling; 2nd, the Hon C. F. H. SCOTT, Maidenhead St. Boswells, for a deep mauve seedling; and 3rd, Mr. T. SMART, for a seedling of a crimson colour with a shade of orange.

Roses made a good display. In the class for 24 blooms, in not fewer than 18 varieties, Mr. L. BLACK, Kinclaven, was awarded the 1st prize; 2nd, Mr. Wm. VIRTUE, Lanark.

Mr. BLACK was also placed 1st for 12 H.T. blooms, distinct, whilst Mr. SIMPSON excelled in the class for 12 Teas, in not fewer than six varieties. Mr. RUSSELL, Rosegarth, won the 1st prize in the class for six blooms of a scarlet or crimson variety shown in a vase. Mr. HOLMS, Helmsburgh, excelled in the similar class for a pink variety; whilst Mr. BLACK showed the best six blooms of a white variety. Mrs. RUSSELL was placed 1st and Mr. D. FRAWER 2nd in the class for six vases of Roses, one variety in each vase.

In the Carnation classes, Gold and Silver Medals were offered by Mr. D. C. WRIGHT, Dumbane, for three vases of border Carnations or Picotees, six blooms of one variety in each vase, and three vases of mixed border Carnations or Picotees, six blooms in each vase. The 1st prizes in these classes were won by Mr. ANDREW BENNETT, Tweedmouth, and Mr. PETER ROBERTSON, Junr., respectively. Mr. I. WILSON exhibited the finest three vases of perpetual-flowering Carnations.

In the Pansy and Viola classes, Mr. C. KAY, Bargmuck, was placed 1st for 12 Fancies, and also for 12 Show varieties. Mr. I. WATTE, Edinburgh, showed the best 12 sprays of Violets.

In the early-flowering Chrysanthemum classes, Mr. K. RICHARDSON, Manor, was placed 1st for six vases; Mr. T. ROBERTSON gained the premier position for 12 vases, the flowers not disbudded, and also for one vase of a white variety. Mr. P. SKELTON showed the best vase of a yellow variety, Mr. W. ROBERTSON the best vase of a crimson variety, and Mr. P. SKELTON the best variety of any other colour.

Mr. D. McLEAN, Raith, was awarded the 1st prize for Michaelmas Daisies. Mr. I. RICHARDSON exhibited the choicest Montbretias and six bunches of hardy perennials. Mr. F. M. UGHART was placed 1st for 12 vases of hardy or half-hardy annuals.

There were only two exhibits in the class in which a Silver Cup was offered by Mr. J. W. McHattie, Edinburgh, for the best display of hardy perennials arranged on a table. The cup was won by Mr. A. BRYDON, Inverleith; 2nd, Mr. A. DICKSON, Glenormiston. Mr. E. McLEAN had the best single, and Mr. E. PICKWELL the best double Asters.

VEGETABLES.

(Open Classes.)

For a display of vegetables in 18 dishes, not fewer than 12 kinds, and not more than two dishes of any kind, arranged on a space not exceeding 6 feet by 4 feet, there were only two entries. The 1st prize was won by the Earl of LAUDERDALE, Thirlstane (gr. Mr. R. Stuart); 2nd, Colonel E. S. RICHARDSON, Ballathie (gr. Mr. J. E. Davies).

There were three exhibits in a class for a display of vegetables in 12 distinct kinds, grown in Scotland, arranged on a space not exceeding 4 feet by 4 feet. Sir H. MAXWELL, Bart., was placed 1st; H. NUNGALL, Esq., 2nd; and Mr. A. MORRISON, Melrose, 3rd.

AWARDS.

FIRST CLASS CERTIFICATE.

Collarette Dahlia Holyrood, shown by Messrs. DOBBIE & Co., Edinburgh.

AWARDS OF MERIT.

Pearly Jessie Lister (Fancy), shown by Messrs. A. LISTER & SON, Rothsay.

Begonia Lady Craner, shown by Messrs. T. S. WARE, Ltd., Feltham.

NON-COMPETITIVE EXHIBITS.

Mr. JOHN PROCTOR, Portobello, exhibited a circular group of early-flowering Chrysanthemums arranged with Palms, Ferns, and Lappagerias, the whole being edged with dwarf Zonal-leaved Pelargoniums and Adiantum Ferns. (Bronze Medal.)

Messrs. JAMES VEITCH & SONS, LTD., Chelsea, put up a splendid display of fruit trees in pots. Pears Triomphe de Vienne and Doyenné du Comice were specially noteworthy. A few choice examples of Figs were also shown, and also some excellent baskets of Apples, including splendid fruits of the Rev. W. Wilks and Rival. The exhibit was interspersed with sprays of Thalictrum dipterocarpum. (Gold Medal.)

Messrs. R. B. LAIRD & SONS, LTD., Edinburgh, showed a collection of Conifers in pots, also Roses and Dahlias.

Mr. JOHN DOWNIE, Edinburgh, staged a group of foliage plants all admirably grown and displayed to good advantage. Dracenas, Codieums, and Alcasias were shown in good colour, and there were also fine examples of Adiantum Farleyense gloriosa, Gymnogrammes, and Nephrolepis Ferns. On a separate stage this firm arranged a fine exhibit of double-flowered Begonias. (Silver-gilt Medal.)

Messrs. DOBBIE & Co., Edinburgh, staged a large collection of their specialities. They showed Dahlias in splendid condition, the new Collarette varieties being specially fine. Early-flowering Chrysanthemums in all the best and most popular sorts had a bright appearance, and some of the best Fuchsias were displayed in pots, together with Begonia Prima Donna. A collection of Sweet Peas embraced such excellent varieties as Melba, Edrom Delcous, and Debbie's Sunproof Crimson. This firm also showed Potatoes in baskets. (Gold Medal.)

Messrs. W. CURTISH & SON, Hightgate, showed a large group of border flowers, with a pool in the centre planted with Nymphaeas. (Silver-gilt Medal.)

Messrs. JOHN FORBES, LTD., Hawick, staged a comprehensive collection of hardy flowers, including Dahlias, Phloxes, Pentstemons, Violas, and Hollyhocks. (Silver-gilt Medal.)

Messrs. ED. WEBB & SONS, Stourbridge, arranged a large stand of garden produce, the principal features being Melons, Tomatoes, and Onions. Sweet Peas were shown in a splendid condition, and there were also fine bunches of Comet Aster. (Silver-gilt Medal.)

Messrs. CUNNINGHAM, FRASER & Co., Edinburgh, showed a collection of border flowers, a large batch of Helenium Riverton Gem being a prominent feature. They also showed well-flowered plants of hardy Ericas in pots and early-flowering Chrysanthemums. (Silver Medal.)



THE

Gardeners' Chronicle

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ROSES AT THE SHOW.

AFTER the trying heat and drought of the summer it was natural that some curiosity should be felt as to what kind of display there would be at the N.R.S. Autumn Rose Show of 1911, and it is probable that few were more surprised than the exhibitors themselves to find the classes well filled and the hall crowded. No doubt some credit for this happy result was due to the President the Rev. J. H. Pemberton, whose forethought and ingenuity had, almost at the last moment, provided the exhibitors with some additional classes specially appropriate to a year of drought. But even apart from these special classes the decorative sections and classes for Tea Roses were unexpectedly well filled, though very naturally those classes intended for exhibition boxes of H.T.s and H.P.s were somewhat weak. Mr. Mawley was certainly right in calling it "the triumph of the Rose," for since the advent of autumn Roses there has not been a summer that has imposed so heavy a strain on the Rose, or one during which it has been more difficult to find a flower capable of standing even a few hours

when cut. Looking back on last year's show it is difficult to imagine a greater contrast between the Roses exhibited then, and those shown last week. Last year, whereas the old H.P.s were displayed in their full glory, the Teas were lacking in quality, and many of the flowers in the decorative classes were badly stained. This year there were but few H.P.s, and these not equal to the best, while the Teas and Roses in the decorative classes, if sometimes rather small flowers, were wonderfully bright, clean, and well-formed. If it was, in fact, a triumph for the Rose, it was largely to the Tea Roses that the triumph was due. Many were surprised at the number of flowers of *Maréchal Niel* shown. Something like a dozen new Roses were staged in the class for new seedling Roses. The most noticeable was *Sunburst*, raised by Pernet Ducher, the French hybridist, who has given us so many useful Roses. It is understood that the flowers shown were from plants grown under glass, and that on a technical ground the Committee were unable to give this Rose an award. Mr. Pemberton showed a very beautiful little Rose, *Margaret Harding*, which he states to be a yellow sport from *Mme. Jean Dupuy*. It was one of the best Roses in the class, and should prove a valuable addition to our garden Roses, particularly if it proves to have the constitution of its parent. It is well shaped and of a good colour. Some thought it resembled *Lady Mary Corry*, but the yellow seemed of a deeper tint. A nicely-shaped pink Rose *Freda*, shown by Messrs. Paul & Son, may perhaps be heard of again, especially if it proves, as stated by the raisers, to be very free flowering. Two good red Roses were shown not very unlike in colour. One by Mr. Hugh Dickson, and the other called *Mrs. Muir Mackean*, by Messrs. S. McGredy & Son, received the award of a Silver-gilt Medal.

Coming to the general exhibition, perhaps the most noticeable exhibit was the large group staged by Messrs. W. & J. Brown, which faced one on entering the hall. It received the award of a Gold Medal, and contained a great central pillar of *The Lyons Rose* flanked by pillars of *White Maman Cochet*, *Joseph Hill*, and other varieties, the back being filled up with Roses innumerable, and the whole surmounted by great sprays covered with *Rose hips*, which gave distinction to the group. A group of Roses arranged on the floor in one corner of the hall by Messrs. Paul & Son was an excellent example of tasteful arrangement. *Seashell*, one of the perpetual-flowering *Wichuriana*s introduced by this firm, looked well in this group, as did flowers of *Mme. Melanie Soupert*, *Mme. Jules Graveaux*, and *Senateur Mascaraud*, while groups of *Dean Hole* of a remarkably fine colour appeared at the back of the collection. Noticeable, too, was a similar group staged in another corner of the hall by Messrs. Hobbies, Ltd. In the decorative exhibits staged by Messrs. Alexander Dickson & Sons, the most striking flowers were *Duchess of Wellington* and *Alexander Hill Gray*, both particularly well

shown. Mr. Prince had, as usual, a very clean-looking exhibit, in which *Mme. Melanie Soupert*, *W. R. Smith*, and *Mme. Constant Soupert* were specially worthy of mention. He had also good bunches of *Gottfried Keller* and *The Lyons Rose*. The show this year seems to have caught *Mme. Constant Soupert* just right, for there were many beautiful flowers of this Rose in the boxes of both amateurs and nurserymen. Among the amateurs it secured for Mr. M. Whittle, of Leicester, the Medal offered for the best bloom; and the success of this veteran rosarian gave considerable pleasure to many visitors at the show. As a whole, the Roses in exhibition boxes were of poorer quality than usual, and the colour of the red Roses in particular was somewhat inferior. The most noticeable specimens in Mr. Hugh Dickson's box were, *C. J. Grahame*, *Jonkheer J. L. Mock*, *Leslie Holland*, and *Monsieur Joseph Combet*; in that of Messrs. Adam and Craigmile, *Horace Vernet*, *Earl of Warwick*, *Ben Cant*, and *Rayon d'Or*. This is, I think, the first occasion on which I have seen *Rayon d'Or* staged in an exhibition box. In that of Messrs. Cocker & Sons, I may mention *Earl of Warwick*, which secured a Medal, and *Gloire de Chedane Guinois-seau*; in that of Messrs. A. Dickson & Sons, *Alexander Hill Gray*, *Mrs. Wakefield*, *Christie Miller*, *Mabel Drew*, and two old friends not often seen nowadays, *Danmark* and *Annie Wood*.

In the amateurs' section, the decorative Roses were more satisfactory than the exhibition classes. The competition for 12 distinct varieties was strong, and the winning stand contained perhaps the best bunches of Roses that have been staged in this class.

The Ladies' Artistic section again attracted much notice. The class for bowls was well filled and *Mrs. Courtney Page's* bowl of *Kaiserin Augusta Victoria* was beautiful both for the cleanness and quality of the flowers and the taste displayed in their arrangement. *Mrs. Tisdall's* bowl of decorative Roses with *Wichuriana* foliage was also very tasteful, but perhaps the effort might have been even more pleasing if the foliage had been somewhat suppressed. There were five entries in the class for table decoration, a class which always gives rise to much comment and difference of opinion among visitors to the show. None I fancy was surprised to find that a table with *Irish Elegance* arranged by *Mrs. Hammond* had again secured the first prize, but one of the visitors at all events seemed to think other Roses ought to have a chance and suggested that the N.R.S. should make two classes for table decorations, one for single and the other for double Roses. "Then," it was added, "We might see some really beautiful Roses." A novel combination of colours was afforded by a table arranged with the *Lyons Roses*, together with a brilliant yellow Rose, named after the exhibitor, while *Mrs. J. Langton* arranged a pretty table with *Edu Meyer* and *Irish Elegance* in combination with *Gruss an Teplitz* foliage.

There was also an elaborately arranged table cleverly decorated with soft pink Roses and Fern and other foliage, producing a rich effect, which would probably have secured a higher place had it not been very much overcrowded.

Take it all round the N.R.S. may congratulate itself on the result of the Autumn Show and the development of autumn Roses, for we now know by experience that alike in a year of drenching rain or in one of torrid drought we have Roses which may be relied on for an autumnal display and moreover that we have exhibitors who can bid defiance to either extreme of weather. *White Rose*.

NOTES ON IRISES.

IRIS FILIFOLIA.

For some years past an Iris has been offered by dealers under the name of Iris filifolia. It is a valuable garden plant, for it is about the first member of the Spanish Iris group to flower, and its blooms are large, with blue-purple standards and pale-blue falls, set off with a golden central stripe. It grows about 12 or 18 inches high, and increases rapidly in rich, light soil. Like all Spanish Irises, it is the better for an annual shift of quarters. This operation may be performed as soon as the foliage turns yellow—about the beginning of August. If it is not carried out, a struggle for existence ensues between the central flowering bulb and the four or six bulbets which cluster round its base, with the result that either the flowering bulb is deprived of some of the nutriment that it would otherwise obtain, or else the bulbets are unable to develop for the following years. In the wild state the latter is the usual result, and the empty husks of bulbets that have been unable to develop are commonly to be found among the withered coats of old flowering bulbs, in which collected specimens are almost always enclosed.

Anyone who has the patience to wait four or five years for the flowers should cross this Iris with pollen of *I. lusitanica* and the ordinary garden forms of *I. xiphium*. The result will be a series of varieties of the so-called Dutch Irises, that have lately been introduced into commerce. The widely-circulated statement that in obtaining these "Dutch" Irises all the known species of Spanish Irises were combined, seems to be erroneous, for none of them shows any trace of perianth tube, which would almost certainly have appeared sooner or later if either *tingitana*, *Boissieri* or *juncæa* had been among the parents. Moreover, the early-flowering habit of the seed parent explains the precocity of the hybrids, which come into flower in the last week in May—usually a full fortnight before the first of the ordinary Spanish varieties.

How the name of *Iris filifolia* came to be applied to the Iris in question is not apparent, for a reference to Boissier's description in *Voyage Bot. Esp.*, p. 602, t. 170 (1839-45), shows clearly that the identification is wrong. Boissier's plant is distinguished at once from *xiphium* by the presence of a tube equal in length to half the length of the bud, while the *filifolia* of the trade has no tube, apart from the short funnel that separates the ovary from the base of the segments of the flower.

It is just possible that the confusion may have originated from the fact that both the true and the false *filifolia* are found in the neighbourhood of Gibraltar. The one may have been collected and re-introduced for the other. Thanks to the kindness of a correspondent I have, this year, had the true *filifolia* in flower here, and the

half-dozen blooms that I had were enough to show how desirable an Iris this is. The stem is about 15 inches high, and bears one or two flowers of the richest red-purple, the falls being decorated with a broad, central golden oblong patch, surrounded by a blue halo. Thanks to the warm, dry weather, seed set in abundance, and the bulbs also have increased in number. It is to be hoped, therefore, that the true *Iris filifolia* may soon be less rare in our gardens than it appears to be at present.

Curiously enough, I also received early this summer some Iris flowers from the neighbourhood of Gibraltar, which, as far as could be seen from their somewhat withered state, were identical with the false *filifolia*. They are known to local botanists as *I. Fontanesii* Godr., a name which by the way, appears to be based upon a confusion and to have no validity. The name of *I. xiphium* var. *precox* would seem to be the most appropriate. W. R. Dykes, *Charterhouse, Godalming*.

LYCOPODIUM SQUARROSUM.

THIS is one of the choicest species of *Lycopodium* and is rare, even in botanic gardens. It is sometimes known as *L. Hippuris*. The genus is



FIG. 102.—LYCOPODIUM SQUARROSUM.

(From a specimen in the Botanic Garden, Cambridge.)

not often regarded as ornamental, but the specimen portrayed in the accompanying illustration, growing about 2 feet high, is distinctly ornamental and is decidedly interesting as representing a type of vegetation common and gigantic in the carboniferous period, but now almost extinct. In a state of nature the stems of this plant are pendulous, but in cultivation it is convenient to have them supported as shown, indeed they grow upright until their weight causes them to hang down. The leaves are awl-shaped, dark green and spreading, the narrower terminal shoots bearing sporangia and forming the spikes. These are as much as 7 inches long. It may be interesting here to remark that in *Lycopodium* the spores are of one kind, while in *Selaginella*, sometimes erroneously called *Lycopodium*, the spores are of two kinds, the female spores large and the male spores small. *L. squarrosus* is a native of the Himalayas, Ceylon, the Philippines and the Seychelles. R. Irwin Lynch, *Botanic Garden, Cambridge*.

NOTICES OF BOOKS.

HOW TO COOK VEGETABLES.*

ENGLISH-GROWN vegetables are proverbially the best in the world, but the English cooking of them is often as bad as it can be. Mr. C. Herman Senn, in his little volume entitled "*How to Cook Vegetables*," ought to do much to remedy this evil, aided, as he doubtless is, by the increasing number of people who prefer an entirely vegetarian diet. Perhaps it is to vegetarianism that we owe some slight improvement in cookery that has taken place of late; but its advocates are as yet somewhat too ingenious in converting good vegetables into bad imitations of meat dishes. In most households "vegetables boiled to a pap in water," as they have been described by a foreigner, are still tolerated.

To take one section of Mr. Senn's practical volume, we may mention Vegetable Marrows, concerning which he has much to tell us. He gives clear instructions for boiling them, for making them into fritters, for baking them, for stuffing them with forcemeat, for cooking them in a savoury with spices, and in stock, and for serving them in three different ways with cheese in the fashion of Cauliflower *au gratin*. Mr. Senn tells of at least 70 methods of making Potatoes palatable.

Several of the less commonplace vegetables are described, among these being Colcannon, Cardoons, Fincocchio, Kohl-rabi, Sorrel, Sauerkraut, Cress, Green-corn, Beetroot-tops, Okra, and even Yams. No mention is made of Mercury (Lincolnshire Asparagus), which is easily cultivated and by no means to be despised. These vegetables rarely find a place in the menu of the average household. Sauces are not neglected, and the volume includes directions also for the cooking of Truffles, Mushrooms, Morels, and Cepes.

Truffles with champagne, Bananas with bacon, Brussels Sprouts with Chestnuts, and Tomatoes with Walnuts, are but a few of the more ambitious concoctions in which Mr. Senn tries to interest us. We could wish that he had given a list of the ingredients required at the head of every recipe, instead of only here and there. The fashionable "paper-bag" cookery is briefly discussed, but most cooks, amateur or professional, know that this is not well suited for vegetables.

In all, 500 ways of cooking vegetables are mentioned, and every housewife who acquires this useful little book and puts the instructions into practice will do much to redeem the reputation of the English cook from the accusation of monotony in her methods. The price of the volume brings it within the reach of most middle-class households.

PLANT NOTE.

ANTHOLYZA PANICULATA MAJOR.

THE flowers of *Antholyza paniculata*, when raised high above the broadly ribbed leaves, are very effective in autumn, and the variety major is even more beautiful than the type. Unfortunately, the variety is later in coming into bloom, and in the colder districts of the United Kingdom, and even in some of the milder parts, the flowers are frequently spoiled by early frosts. This season was apparently an exception, and it shows the necessity of planting the variety in a warm, dry position, so that the blossoming may be advanced. The plant is worth growing where it will flower in good time, as the scarlet and yellow flowers appear very beautiful in combination with the handsome leafage. I find that deep planting is beneficial, placing the corns beyond the reach of frost, and 6 inches deep at least. I may add that I have had *A. paniculata* major for eight or nine years. S. Arnott.

* *How to Cook Vegetables*, by C. Herman Senn. (The Food and Cookery Publishing Agency, Westminster) Price 2s.

CALLIANTHEMUM RUTÆFOLIUM.

CALLIANTHEMUM RUTÆFOLIUM is one of the earliest of our spring-flowering plants coming into bloom about March or April and lasting for a considerable time. It is suitable either for the rock-garden or hardy-flower border, being of easy cultivation and growing readily in any good garden soil.

It forms a dense dwarf cushion of foliage at the period of flowering, above which, on short peduncles, stand the white or very slightly pink-tinted blooms, which are an inch or more in diameter.

The foliage afterwards elongates until it becomes from 4 to 6 inches long. It may be readily propagated in spring, just as growth commences, by division of the crowns. Each of these, if placed in small pots and grown in a close frame, will soon become established plants.

It is a native of Europe and Siberia, and is said to be identical with the Himalayan *C. cachmerianum*. Other varieties are *C. rutæfolium* *anemonoides*, *Botanical Magazine* t. 7603, and *C. r. Kernerianum*. *R. L. H., Edinburgh.*

PRIDEAUX PLACE.

THE Cornish seat of the Prideaux (pronounced to rhyme with dukes) Brune family spreads its arms around the small fishing town of Padstow, on the north coast of the duchy, in true patriarchal fashion. The town clusters around the quay on level ground, and immediately behind it rise the grounds of "Place" in horseshoe shape. Padstow is a small, irregularly-built town of less than 2,000 inhabitants. Its harbour is unequalled for security anywhere along the wild north coast of the county. No matter how wild a storm may be raging just outside, once a vessel has found anchorage in the harbour it is in safety; but, to make the harbour, perfect local knowledge is necessary, for on the other side of the narrow gulf lies the dreaded Hell Bay, with death in waiting. The terrible disaster of 1900, when the two icebergs stationed at Padstow—a steamer and a rowing boat—were wrecked, will for ever live in the minds of the people of Padstow.

In such an old world town as Padstow one rightly expects many old customs to survive the bustle and heedlessness of modern life. On May Day the may-pole is dressed, and girls in white, wearing garlands of flowers dance around it. Elders of the other sex bring out the hobby-horse, which, with its eight attendant hobby-horse pairs (a corruption of peers), canters and gambols through the town to the front of "Place," where the lord of the manor receives them, and empties a purse of money into the hands of the "pairs" "for the horse to drink." Amongst the townsmen, as the sand-dunes are called, across the estuary, stands the buried church of St. Endoc, which at times has been so overwhelmed by sand storms that the clergyman is said to have effected an entrance through the roof.

As befits lords of the manor, the heads of the Prideaux-Brune family have always closely associated themselves with the welfare of the town of Padstow. An ample supply of pure water, a modern sewage system, and a splendid institute all owe their existence to the public spirit of the father of the present owner, Col. C. R. Prideaux-Brune, who, with the Rifle Brigade, saw service in the Ashanti War.

Legend has it that Prideaux Place stands on the site of the chapel which St. Patrick built after he swam over from Ireland on an altar of stone. This is as may be, but it is fairly evident that when the present mansion was erected, towards the end of the 16th century, the ruins of the chapel of St. Samson, Bishop of Dol, which dates from A.D. 546, were demolished. The house, rich in antiquarian and artistic treasures, is a large castellated building, with its front in the form of an E. In the front hall there are

specimens of Chippendale furniture, and the extensive library was recently re-arranged by Mr. John Lane. Against the front of the building there are some exceedingly fine plants of *Magnolia grandiflora*, which produce enormous numbers of large flowers, scenting the air for a great distance. At the other end, *Ficus repens* climbs to the eaves, being so perfectly at home that it bears the distinct-looking, arboreal form of foliage. *Solanum jasminoides* makes long trails of growth, which become wreathed with flowers. In front of the mansion, on a narrow grass terrace bordering the road, there is a row of *Cordylina australis*; all fine plants raised from seed ripened in the gardens. These tall, straight-stemmed plants look very imposing, and are admirably suited to the architecture of the walls. The gardens and pleasure grounds are just over 20 acres in extent, and are chiefly enclosed by a belt of trees and shrubberies, which possess many delightfully shady walks. In the spring, thousands of bulbous flowers enhance the prospect. Snowdrops, closely followed by Crocuses, which later on give place to the golden Daffodils, clothe the ground. *Anemone apennina* grows well where wire netting has been laid flat over the patches, otherwise pheasants greedily eat the tubers. On the windy sides—and winds rage fiercely at Pri-

the grounds there is a charming informal bog-garden with a huge clump of *Gunnera manicata*, a tall-flowered *Eryngium pandifolium*, *Polygonum cuspidatum* and other moisture-loving plants, whilst on slightly drier ground various Bamboos and *Phormiums* are equally at home.

A modern conservatory faces a small, but exceedingly gay flower-garden, the chief features being fine Cannas, *Lobelia cardinalis*, various Begonias, and tall pillars of ivy-leaved *Pelargoniums*, which are sunk in the grass at regular intervals by the sides of the walks. Against the back wall of the mansion there is an exceedingly fine *Cornus capitata*, more generally known as *Benthamia fragifera*. When in flower, this half-hardy tree is a beautiful sight, bearing hundreds of its single, rose-like flowers, to be followed by large fruits, seedlings from which spring up promiscuously between the flat stones of the courtyard.

Mr. Brown, who has had charge of these gardens for many years, succeeded the late Mr. Tallack when that very capable gardener went from Cornwall to Shiplake Hall. Like his predecessor, Mr. Brown does everything well, and is especially successful with indoor plants.

A stove-house contains clean, well-coloured Crotons, *Dracaenas*, and other plants useful for



FIG. 101.—*CALLIANTHEMUM RUTÆFOLIUM*: FLOWERS WHITE OR LIGHTLY TINGED WITH PINK.

deux Place—stone walls break the force of the gales, and ivy has been planted in large quantities under the trees. *Eucynimus* of all kinds and *Aucubas* have been found to withstand successfully the salt-laden gales, and these shrubs grow well in partial shade. Of the many noteworthy shrubs growing in the more sheltered parts of the grounds, mention must be made of *Ilex latifolia*, 25 feet high; *Griselinia littoralis*, which, as its specific name implies, is quite at home near the sea; *Fatsia japonica*, which grows to be a huge bush, and near by is an unusually fine *Pittosporum Colensoi*, while *Berberis japonica* sends out its huge leaves. *Photinia serrulata* fills a large corner by the conservatory, and is very attractive in the early spring, when its purple young shoots appear. In a sheltered dell towards the coast a number of *Cordylina australis* have found a congenial home, and here many hundreds of *Primroses* and *Polyanthuses* of Miss Willmott's strain and Wilson's Blue *Primrose* bloom well, and uncommonly early. Miss Willmott's *Polyanthuses* are also grown in quantity for furnishing an unheated glass-house in the spring. On one of my visits this house contained a large batch of exceedingly fine plants with flowers 1½ inch across, emitting a most pleasant perfume. Away at the opposite end of

house decoration. An unusual feature consists of a number of *Datura suaveolens* growing in 5-inch or 6-inch pots. By potting firmly, and standing the pots in saucers of water when the plants are well rooted, each plant will bear half-a-dozen or so of its large, white, trumpet flowers. These plants, when in bloom, are in great demand for drawing-room decoration. Until a few years ago Mr. Brown was amongst the most successful exhibitors of Grapes and *Chrysanthemums* in the West of England, and although he does not now exhibit, there is not the slightest falling off in the quality of his produce. The Grapes from his well-managed vineries are of very high quality, and the late sorts keep till long after Christmas. In the frame-ground a number of pits are devoted to the early forcing of vegetables. The frame Potatoes grown at Prideaux Place are May Queen and Ringleader; the tubers are planted at a greater distance apart than is usual, but the results fully justify the method. The other customary forcing crops are also successfully grown; and during the summer these pits are occupied by various plants useful for house decoration, Carnations being particularly in request.

The principal kitchen garden slopes to the south-east and produces very early crops of high-

class vegetables. Fruit trees are grown against the walls, and here in this favoured climate Peaches fruit well out of doors. Bush Apple and Pear trees have been planted around the kitchen garden plots, and when the seasons are at all favourable good crops are assured. Besides such standard varieties of Apple as Cox's Orange Pippin, Blenheim Pippin, Sturmer Pippin, and Annie Elizabeth the lesser-known Stone's Apple, a Kentish fruit otherwise known as Loddington Seedling, is esteemed. This variety bears an enormous crop of large culinary Apples coming into bearing at an early stage. This regularity of bearing is due largely to its habit of making short-jointed growth. As may be expected in a seaside garden, Asparagus yields enormous cuttings of large shoots. Practically the whole of the north coast of Cornwall is famed for its crops of Potatoes and Onions, including Eschalots, and Prideaux Place is no exception to the rule. The light, sandy soil, with plenty of sunshine, favours the production of firm, high-class bulbs and where, as in this garden, good cultivation is the rule, large size is added. At the village flower shows in North Cornwall the Onion and Eschalot classes are closely contested, the entries are usually very numerous, and often

trail of leaves of fruit trees, Scarlet Runner Beans, and what not, as brittle and brown as though scorched by fire. In such a sparsely-populated country, the furred and feathered foes of the gardener abound, and, besides the ordinary protection of buds and fruits, means have to be taken to protect crops from the onslaught of pheasants and hares. In a garden like that at Prideaux Place, which is attached to a sporting estate, it is no uncommon experience to find the pheasants perched on the fruit walls eating Peaches before they are fully ripe, or making a meal of the best Brussels Sprouts. On one visit Mr. Brown showed me a fine bed of Parsnips on which the game birds had begun to take toll. The wise gardener takes these happenings philosophically, does his best to guard against the depredations, and endeavours to grow extra quantities, so that his supplies shall not run short. A. C. Bartlett.

CAMPANULA ACUTANGULA.

THE genus *Campanula* contains many dwarf-growing species, providing charming little plants of great value for the rock-garden, or for cul-

plants have only recently come into cultivation; the specimen illustrated at fig. 104 was obtained from Mons. H. Corveon two years ago. The flowers, which exceed 1 inch in diameter, are produced freely for a long time, and the one-flowered peduncles are either axillary or terminal. The plant is a valuable addition to the moraine garden. W. I.

THE PRIMULAS OF THE EUROPEAN ALPS.

(Concluded from p. 202.)

HYBRIDS.—IV.

P. minima × *P. villosa* (P. Laxii, P. flatnitensis, P. variiformis) has, unlike *P. villosa*, a scape shorter than the leaves, and is easily distinguishable by its glands, which are nearly colourless; from *P. minima* it differs in its several-flowered scape, and glandular, nearly opaque leaves. It has been split into two named varieties, neither of which is common in culture. *P. × Sturii* (Widmer); leaves broadly cuneate, with 8-10 tiny teeth, sparsely scattered with colourless or pinkish glands. Scape shorter than the leaves, one to five flowered. Corolla-tube redly glandular outside, the throat filled with long hairs. (Styria.) *P. × truncata* (Widmer = *P. Jiraseckiana* of Tratt): leaves wedge-shaped, roundly truncate at their end, with five to seven teeth, set round the edge with very short, colourless glands. Scape two-flowered; the flower-tube sprinkled externally and in the throat with tiny colourless glands. (Styria.)

P. minima × *P. ænensis* = *P. coronata* (Porta) has, unlike *P. minima*, which it closely resembles, glandular leaves, and a two to four-flowered scape. It is smaller than *P. ænensis*, has a longer calyx, and non-glutinous leaves. Unfortunately, like all the hybrids in which *P. minima* has had a hand, this cross varies indefinitely, and has accordingly, like the rest, been divided unnecessarily into named forms, which overlap. Of these, *P. × pumila* (Widmer) is very small, and close to *minima*, with two-flowered scape, and six to nine regular, horny-pointed denticulations to the leaf. *P. × Widmeræ* (Pax) is bigger, carries four flowers, and has obovate leaves, with eight to ten tiny teeth, not horny-pointed. Both these and their intermediates—all ought to come under *P. coronata*—are found in the Alps of Southern Judicaria.

P. hirsuta × *P. minima* (P. Brennia, P. diversa, P. venalensis).—This, again, is a most gorgeous but very variable cross, inclining now towards *P. hirsuta* and now towards *P. minima*. Its subdivisions are annoying and uncalled for.

P. × Steini (Widmer) is the primary intermediate (as I should like to call it, P. Forsteri 2), with oblong-spatulate leaves, glandular but lucent, with seven to ten horny, pointed teeth from the middle to the tip. Flower-scape carrying from two to five large flowers. (Brenner Alps.) Then there diverge from this (among many other forms, of course): towards *P. hirsuta*, *P. × Kellereri*, a wonderful beauty at its best, differing from *P. hirsuta* in having horny-pointed teeth to the little leaves, which also have shorter glands. They are viscid-opaque, very glandular, ovate-cuneate, rounded at the tip, thickly toothed from their middle: the scape carries from two to six flowers, which are very large, and of a flaring crimson. Then, towards *P. minima*, *P. Steini* is called *P. × Forsteri* (Stein), which has all the small habit of *P. minima*, and a much shorter, fewer-flowered scape than *P. Kellereri*. The leaves, however, unlike *P. minima*'s, are rounded at the tip and glandular, though lucent and wedge-shaped. The flowers are of enormous size and the most gorgeous colouring. All these forms are found, in greater or less abundance, with their many variations, among their parents, on the Brenner Alps. It is curious to note the size and brilliance of the blossoms often produced through



Photograph by W. Irving.

FIG. 104.—*CAMPANULA ACUTANGULA* FLOWERS PURPLISH-BLUE.

it is a coastguardsman who wins the leading prize.

The general conception of gardening in Cornwall implies that it is a very easy matter. The seeds are sown—cultivation of the ground seems to be quite unnecessary—and a genial climate, with a more than average rainfall, does the rest; the gardener rejoicing in a dolce far niente until the time of the harvest. Such appears to be the ideal of some of the daily newspaper writers, but, as Mr. Brown, and many other painstaking gardeners in Cornwall, could tell us, there is another side to the story. Except in a very small portion of the duchy—along part of the south coast where the early Broccoli are grown—the soil is shallow and "hungry." Ten dry days are sufficient to cause plants to hang out signs of distress. The water supply is usually very limited; so to combat the lack of moisture thorough preparation of the soil is obligatory, and one soon gets "down on the country," as the natives say when the rock is reached. As always, dry weather brings insect pests in its train; these have to be anticipated and fought. In the spring, and again as autumn approaches, fierce salt-laden gales sweep over the gardens, leaving behind them a

ture in pans. *C. acutangula* has trailing stems bearing large, star-like flowers of a purplish-blue shade of colour. It is closely allied to the difficult *C. Morettiana*, and is considered by some to be a form of that species, but the flowers are not so distinctly funnel-shaped, being flatter and more star-like in appearance; neither is the plant so hairy in any part of the stem or leaves. *C. Morettiana* is found growing in the Southern Tyrol in the cracks of calcareous rocks; *C. acutangula* is a native of the high Alpine regions of Northern Spain, where it grows in open, stony places. The plant has small, round, toothed leaves and short, one-flowered stems. The latter are produced freely from a central rosette of stalked, Ivy-shaped leaves, and flower in June and July. Like *C. Morettiana*, it is a difficult plant to cultivate; it needs treating in the same way as *C. Allionii* and *C. cenisia*, which are found growing in the moraines of glaciers and masses of stony debris on the Alps. When grown in pans, the receptacles should be half-filled with drainage; the soil should consist largely of coarse sand and shingle, only about one-third of loam being necessary. *C. acutangula*, Ler. and Lev., was described as a new species in the *Journal of Botany* in 1879, but

the not pre-eminently large or brilliant *P. hirsuta*. See also, for instance, *P. Heeri*.

P. minima × *P. tyrolensis* = *P. Juribella* (Sundermann).—This queer, lovely, and very rare little hybrid has only, I believe, been quoted from above the Giur-bella Alp, where, however, it is sufficiently abundant, growing among *P. minima* in the fine mountain grass. Even in this one station, the hybrid varies, but can always be recognised by its leaves, much fuller and rounder than *P. minima*'s, and of a duller grey-green, thanks to their glands. The scape (pace Pax) occasionally carries two flowers, and forms can be found which tend more towards *P. tyrolensis* than towards *P. minima*, the mother, to whom *P. Juribella* usually approaches.

P. minima × *P. glutinosa*.—This very abundant and vast series of hybridisations (the only series in which *P. glutinosa* shares) is usually treated under four named heads, irrespective of which way the cross may have been made. However, for the moment it may be simpler to take first the two main forms, suggesting *P. minima* × *P. glutinosa*, and then the other two, more suggestive of *P. glutinosa* × *P. minima*. The whole question, of course, is painfully academic and illiberal: these two species yield an endlessly polymorphic progeny, in which it is quite useless to attempt any such rigid delimitation.

P. × Huteri (Pax) is close to *P. glutinosa*, with violet flowers, and glutinous, dentate leaves, which, however, are oblong-spatulate. This form passes on into

P. × salisburgensis (Pax: *P. floerkeana*, Reichb.), whose scape is not glutinous, and whose leaves are wedge-shaped, armed towards their end with seven to nine well-marked teeth. Flowers red-violet, and reminiscent in size of *P. glutinosa*. This form then merges, or is connected with, the reverse cross,

P. minima × *P. glutinosa*, of which the first and most important development, well known in gardens, is the very brilliant *P. × floerkeana* (Pax: *puberula*, Schott, and *permixta* Gusmus). This plant is, if typical, very intermediate. Its spatulate leaves, bright green, have nine to twelve very vivid, triangular, horny-pointed teeth. Its flower-scape is glutinous, almost as tall as *P. glutinosa*'s, with one to four very large flowers of a bright red-mauve. This, the commonest hybrid, is variable, and passes on, through many intermediate forms, to one which is stereotyped as

P. × biflora, a rare occurrence, approaching exceedingly close to *P. minima*, but with two big pink flowers on the very short scape. Here the influence of *P. glutinosa* seems to have almost passed away: even the calyx bracts have not the full bagginess so characteristic of *P. glutinosa*, though the leaves are obovate spatulate, with sharp teeth down to their tip.

All these forms, and countless others, linking up these four, and offering a chance of 40 more, occur in greater or less abundance wherever *P. minima* joins company with *P. glutinosa* on the very high granitic moors, where alone the latter is able to dwell. Brenner Alps, Southern Dolomites (not on Dolomite, naturally), &c. Monzoni-Thal.

And now, finally, for two last words of comfort to those whom this perusal of unnecessary intricacies may have appalled. In the first place, rule of thumb is the best way in the end of determining a hybrid's name and origin. Not one of them but keeps, to the seeing eye, a preponderant look of the mother to whom it belongs. These crosses always offer an obvious suggestion, anyhow, of their parentage. And also, if you come upon them in the open wilds, the presence there of both their progenitors as well will almost always make their pedigree plain. In the second place, the half, at least, of all the foregoing minutely-differentiated names are, or ought to be, mere bruta fulmina, with which the gardener need have no concern. Between two species there will be two perfectly plain crossings, this way and that (or only one way, perhaps). One name should suffice for each crossing: although within this limit there may be an almost endless amount of variation. To name and precisify such differences once and for all is nothing better than a vanity as idle as attempting to weave solid ropes out of the shifting sand. *Reginald Farrer*.

THE WEEPING VARIETIES: ULMUS MONTANA.

THERE are two well-marked weeping varieties of the Scotch or Wych Elm, viz., *Ulmus montana pendula* of Loudon, and the Camperdown Weeping Elm. In the *New Handlist of Trees and Shrubs* (second edition, 1902), Loudon's plant is the only one mentioned amongst the numerous varieties of *Ulmus montana* as a weeping form, and, excepting in British and American nursery catalogues, the Camperdown variety very rarely receives notice in any of the literature pertaining to trees.

Mr. Mitchell, nursery foreman to Messrs. R. B. Laird & Sons, Ltd., Edinburgh, informs me that some 30 years ago he saw the original plant of the variety growing at Camperdown House, the Earl of Camperdown's seat near Dundee. The tree, Mr. Mitchell states, was of considerable age then, and quite prostrate in habit, creeping along the ground amongst other Elms.

Although both varieties are frequently met with, it was but quite recently that I had the oppor-

manner, and stretching them out sometimes horizontally, but at other times almost perpendicularly downwards, so that the head of the tree exhibits great variety of shape. By some, this variety is supposed to belong to an American species of Elm; but from its large, rough leaves, its vigorous young wood and large buds, and, above all, from its flowering at the same time as *U. montana*, and, like it, ripening in abundance of seeds, which no American Elm whatever does in Europe, we have not a doubt that it is a variety of *U. montana*. Grigor (*Arbiculture*, first edition, 1863, p. 338) refers to Loudon's plant thus:—"The most ornamental and picturesque tree of the genus is *U. pendula* (Loudon), Weeping Elm, of which there are also several varieties. Plants raised from seeds are apt to lose the peculiarities of the species. It is therefore propagated by being grafted on the tops of the stems of any of the common Elms. In this way it grows freely, and soon forms a head of considerable magnitude, and of the most wild, diversified, and rugged form. In the vigour of youth, it shoots forth in a frond-like manner, often directing its branches horizontally, some down-



FIG. 105.—ULMUS MONTANA PENDULA.

London's variety on right; Camperdown on left.

tunity of seeing a number of fine specimens of them growing side by side. This was in the Grange Cemetery, Edinburgh (see fig. 105), where the tree has been extensively planted, and by the kindness of Mr. Riddell, the superintendent, I was able to obtain photographs. The tree of the Loudon variety measures 43 inches in circumference at a height of 5 feet from the ground. It is 15 feet high, and has a spread of branches measuring 40 feet. Another tree of the same variety has a girth measurement of 43 inches at 5 feet, with a spread of branches of 30 feet, and there are others of similar dimensions. One of the latter, it was observed, had been grafted on the Exeter Elm, *U. montana fastigiata*. The larger of the two trees of the Camperdown variety has a girth of 37 inches at 5 feet from the ground, and is fully 15 feet to the summit of the crown, with a spread of branches of 20 feet.

In *Arboretum et Fruticetum Britannicum* Loudon gives an illustration (vol. vii., fig. 241) of a weeping Scotch Elm, 16 feet high and 4 inches in diameter. Loudon's description of the tree (*Arb. et Frut. Brit.*, vol. iii., p. 1,399) is as follows:—"This is a beautiful, highly characteristic tree, generally growing to one side, spreading its branches in a fan-like

wards, some upwards, and some obliquely, displaying a majesty and grandeur in its ramifications which are never seen in any other young tree. As an object for the lawn, the park, or the pleasure ground, it has no equal among fast-growing plants. Its picturesque effect resembles that of the Cedar." Both Loudon and Grigor refer to fine trees of this variety at the Fulham and Hammersmith nurseries, near London, and the latter mentions that "the best specimen of the tree in Scotland stands in Blackfriars' Haugh, Morayshire, about 30 feet in height, with a trunk 4 feet 6 inches in girth at 1 foot above the surface, and the spread of its branches measures 108 feet in diameter."

Both varieties are undoubtedly handsome, ornamental trees when they are well grown, and more especially when they come to a considerable size, but the Camperdown variety is undoubtedly the choicer of the two. It forms a fine, umbrella-shaped head, which is in marked contrast with the flat, somewhat stiff-looking crown of the other variety, while its leaves, which are relatively broader and rounder, clothe the branches better, owing to the lateral twigs not bending downwards and leaving the main branches bare as they do in Loudon's variety. *A. D. Richardson, Edinburgh*.

The Week's Work.

FRUITS UNDER GLASS.

By E. BUCKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

FRUIT TREES IN POTS.—The work of repotting the principal batch of fruit trees must now be undertaken. The culture of fruit trees in pots, which is increasing, offers many advantages, the fruits being superior in flavour and colour to those grown out-of-doors, and the crop never endangered through the blossoms being destroyed by frost. Very little artificial warmth is necessary, the chief requirements of the plants being room and light. Later trees may be grown in cold houses, where they will fruit in advance of specimens out-of-doors. Most kinds of fruits may be grown in pots successfully, and though only a few trees are cultivated they will furnish a useful supply of early fruits. Where it is intended to introduce fresh trees that have been potted for the purpose, these should now be brought indoors as they will require repotting. With the exception of old, established trees in large pots, potting should be done annually. Clean, sound pots are essential, for if the pots are not satisfactory they will cause trouble at a later date. Perfect drainage is most important, and nothing is better for placing over the crocks than good fibrous loam, arranged grass side downwards, always using this in preference to the roughest of the compost or such materials as leaf-mould or spent manure from an old Mushroom bed. The compost should consist mainly of fibrous loam, and, for preference, should be pulled in pieces, adding a good sprinkling of mortar rubble, some soot, bonemeal and chemical manure. The soil should be neither too wet nor too dry. In potting, the soil should be well worked down around the old ball, and a sprinkling of fine, crushed bones over the rough material will be beneficial later. Carefully remove the old crocks at the base of the roots and reduce the amount of old soil with a pointed stick. After potting, give a thorough watering, and stand the pots on a hard bottom formed of cinder ashes in the open. If maiden trees are to be purchased for growing on, these should be procured as soon as possible, and potted into fairly small receptacles, shortening the strong roots with a sharp knife.

MELONS.—Assist Melon plants on which fruits are swelling by occasional sprinklings of a rich fertiliser. Less water will be required as the days shorten, and more fire heat will be necessary, especially at night time. Whenever the weather permits, ventilation should be afforded, closing the structure again early in the afternoon. As the fruits commence to ripen, withhold stimulants altogether, lessen the amount of water at the roots, afford more air, and provide artificial heat to assist in developing the full flavour of the fruits. Young plants, forming the latest batch, should be syringed with tepid water to encourage a clean growth.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

THE CONSERVATORY.—Dwarf, early-flowering Chrysanthemums are very suitable for the decoration of the conservatory at this season, and they will last for a month to come. The large number of flowers produced by well-grown specimens is surprising, and healthy plants having plenty of good foliage last in a fresh condition for a long time. They may be grown out-of-doors until they are wanted, which is a great advantage, as the glasshouses can be utilised for other plants. These dwarf Chrysanthemums require very little training, and the flowers need not be disbudded. They do not provide such a wide range of colour as the large-flowering kinds, but the variation is ample for all purposes. By the time these remarks are printed it may be advisable to bring the more forward specimens indoors, as the fine weather appears to be breaking up, and we may expect a considerable quantity of rain. The more forward specimens of the larger flowering kinds that have

been disbudded will also need to be placed under cover very shortly; some of our plants have already been brought under glass. When they are housed, a close watch must be kept for mildew and if any is detected the foliage must at once be dusted with sulphur—preferably very fine black sulphur, which is almost invisible on the plants. Continue to give liberal supplies of food to Chrysanthemums developing their flower-buds. Make preparation for the housing of the general stock of Chrysanthemums by the end of this month, endeavouring to have them all arranged indoors by the end of the first week in October at the latest.

LILIUM SPECIOSUM.—Plants of *Lilium speciosum* that have been checked by placing them under a north wall will prove useful at this season. They are best grown in rather small pots during their first year; afterwards, if they have done well, they may be shifted into a pot one size larger. These remarks apply to bulbs that have grown singly in pots.

CANNA.—Plants of *Canna* that have been cultivated as advised in a previous calendar will still prove serviceable in the conservatory. The foliage is extremely ornamental, and, if the old flowers and seed-pods are picked off, the plants will lend a semi-tropical appearance to their surroundings. During the next few weeks it may be necessary to circulate a little heat in the water pipes to prevent damping. The ventilators must be opened, otherwise the atmosphere will remain stagnant.

SALVIA SPLENDENS.—Plants of *Salvia splendens* in pots out-of-doors are making a good display. If any of them can be spared from the flower-garden, they should be brought under glass, where, if the old spikes are removed and a liberal treatment afforded the roots; they will furnish another crop of flowers. *Grandiflora* is the best variety for October and later flowering, being more reliable at that season than *Gloria* of Zurich or any of the other dwarf varieties. *S. splendens* is extremely useful when grown as standards, and *grandiflora* is one of the best sorts for this kind of training.

SOLANUM CAPSICASTRUM.—Plants of *Solanum capsicastrum* that are planted out should have the shoots stopped to throw all the energies of the plant into the berries. In the course of a few weeks they may be potted, keeping them in a close frame or greenhouse until the roots have recovered from their disturbance. Do not pot too large a mass of the old earth; if the growth is firm and hard the "ball" may be reduced with advantage.

RICHARDIA AFRICANA.—Arum Lilies that have been planted out should be lifted and potted as soon as possible, treating them as advised for *Solanum*.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

AUTUMN NOTES.—The hot, dry summer has suited Orchids requiring high and intermediate temperatures. The brilliant sunshine, together with the high temperature, have resulted in a strong, solid growth that may reasonably be expected to produce extra fine flowers next season. Moreover, the beneficial effects of this summer upon many Orchids will be seen next year in new growths of greater vigour than usual. In many instances Orchids, and especially those with pseudo-bulbs, are too densely shaded in bright weather. I am well aware that in mixed collections it is a difficult matter to regulate the shading to suit all the plants, but this is not the case where a house is wholly devoted to one kind. Without proper light and air Orchids cannot be expected to remain in a healthy and free-flowering condition; they may, for a time, make free growth in a densely shaded house, but they will gradually become enfeebled under such conditions. The weather is now much cooler, and the longer nights remind us that the summer is past. Henceforward growers should make the most of all the sun's heat and light. It is impossible to give precise directions as to diminishing the shading at this season. Much will depend on the aspect of the house and the arrangements of the plants; in any case, the diminutions should be gradual. The foliage of all Orchids should now be getting harder, and very little protection will be needed after about the end of this month, provided the

amount of shading has been systematically reduced.

WATERING.—The watering of the plants will, from now onwards, require much more judgment than when the plants were in active growth. Orchids cannot be treated collectively in this respect. The wants of the various species and the condition of the growth of the plants have to be considered separately, and the treatment varied accordingly. Many with pseudo-bulbs will have finished, or be fast completing their bulbous stems. With these, more than with most Orchids, it is necessary to watch individual plants, affording those with unfinished growth sufficient sustenance to avoid weakening the older bulbs, even when the new ones are formed. It is a mistake to cut down the water supply too suddenly, as the roots of many are most active just as the new pseudo-bulbs are swelling. Many plants of distichous-leaved species are still growing freely. These should be kept moist at the roots until the latter show, by the white films closing over the points, that their season of rest is at hand. Here again individual plants may require special care, and none of them must be over watered, as spotted leaves and other troubles result from affording too much water at this season. All terrestrial kinds with strong and persistent roots that are growing freely will require ample waterings to encourage healthy growth, and the production of strong flower-spikes.

VENTILATION.—The successful culture of most Orchids depends, to a large extent, upon a proper amount of atmospheric moisture. While this should be plentiful during the growing season, much less is required now. The cooler divisions of the range will require the least damping, because evaporation will be less in them. In the warm house sufficient atmospheric moisture must be afforded to counteract the effects of fire heat necessary to keep up the desired temperatures. Ventilation, artificial heat, and moisture must be regulated one with another. Houses kept close and moist are quite as unsuitable for the cultivation of Orchids as those that are cold and draughty. In those houses where a small amount of fire heat is necessary, keep the ventilators open a little both night and day, damping the paths and bare spaces freely in order to promote suitable conditions of moisture and temperature. On bright, warm days, the sun's heat should be taken full advantage of by these means and not by closing up the house early as some advise. A few degrees of warmth are saved by the latter method; but, by leaving the ventilators open a trifle, the shading may be removed earlier, giving the plants the full benefit of the sun's rays, which is a very important consideration.

THE FLOWER GARDEN.

By R. P. BRIGHTON, Gardener to the Earl of HARRINGTON, K.T., Tynemouth, East Lothian.

SEEDLING BEDDING PLANTS.—The present is a suitable time to afford larger pots to seedlings of Hollyhock, *Humea elegans*, *Francoa ramosa*, and similar subjects intended for bedding next year. The plants need to be kept under cool conditions, and, though they may make very little growth in the winter, they will be gaining vigour all the time, and will grow strongly on the return of genial weather in the spring.

CARNATIONS.—The potting of border Carnations should be finished as soon as convenient. I use principally 4 inch and 5 inch pots, placing a single plant in each pot. The plants should be placed in frames at once, but the lights, for the present, need only be put on during heavy rains. Because of damage done to these plants by rats, moles, and mice I am obliged later in the season to place them in a cool house from which these pests can be excluded. Winter-flowering varieties still in flower in beds or borders may be lifted carefully, placed in flower-pots, and utilised for decorative purposes in the greenhouse.

MICHAELMAS DAISIES.—Fortunately border Asters have been not so much affected by the abnormal heat as most plants, and they are flowering only slightly in advance of their usual time. Most of the kinds, if the ties are loosened, may be made to spread over a considerable space. By this means places occupied all through the summer by other flowering plants may be largely

filled, and, if there are plants of Asters in reserve, these may be utilised for furnishing other vacant places. No plants may be transplanted more satisfactorily than these, and though they introduce a tone of grey in the flower border, their presence is not at all displeasing.

HELLEBORUS ALTI-FOLIUS.—This plant is beginning to show its buds, which will shortly expand into massive blooms. Where the soil is still dry, it may be advisable to soak the roots with water. Leaves that are damaged by fungous disease should be removed, the ground made tidy again after the watering, and the beds made generally neat for the season. Several other Hellebores will shortly be in flower at Tynninghame. These are planted at the foot of a wall with a south-east aspect, and yield large quantities of flowers from late autumn till spring. These also need examining for decaying foliage, which should be all removed and the plants made tidy for the winter.

THE WILD GARDEN.—Grass which has been permitted to grow uncut since the summer in semi-wild places should now be mown as close to the ground as possible. There is just time for a little new growth to be made before the winter arrives, and the closer the grass is trimmed the easier it will be to sweep up tree leaves when they commence to fall. Primroses do well in these places, and increase from self-sown seeds; seedling Primroses raised from a spring sowing may be transplanted subsequent to the mowings being cleared away. Trees of Lime and Chestnut have been shedding the leaves for several weeks past, causing much work in sweeping them up. If there is no time to remove the leaves and other litter after it has been swept up heaps should be formed at short intervals to be removed later as opportunity presents itself.

SWEET PEAS.—A sowing of Sweet Peas may be made now, either in the open or in pots. The variety Nellie Jenkins has flowers of a lovely shade of lavender; it is one of the best of its shade. Mr. B. has flowers of a strikingly beautiful shade of soft salmon. Thomas Stevenson and Mary Campbell are other good varieties. Lady Malcolm is a shade between Paradise Ivory and Clara Curtis; this also is worth growing. If these I have named are grown in addition to the old favourites they will provide a choice selection of flowers for the garden and house.

THE HARDY FRUIT GARDEN.

By W. HENLEY WARREN, A.G.S. (Linton Gardens, Buckinghamshire).

CHOICE OF TREES FOR PLANTING.—Whether the trees have been grafted or budded, be careful to select only those that have been worked on young stocks, as old, stunted stocks which are sometimes grafted or budded, seldom give satisfactory results. Healthy stocks have a smooth, clean, shining bark, and those that have a rough, wrinkled surface should be rejected. In stone fruits, reject any tree that shows a trace of gumming. It is essential that the tree is well furnished with young wood in every part, and this applies particularly to fan-trained specimens, for if by injudicious pruning the main branches are bare of young wood for several inches from their origin, it is only with great difficulty that new shoots can be induced to grow at those parts. This trouble is more easily overcome in trees of other shapes; simply shortening the branches will usually result in the production of plenty of young growths. It is of the greatest importance in the case of stone fruits to prune and dress carefully roots that have been damaged in transplanting. The roots of Peach and Apricot trees should be dressed with styptic after they are trimmed, for if this is neglected gumming is almost sure to follow. If a strong, leading root has been damaged, it should be pruned to a lateral root, as by diverting the sap into an existing channel, the formation of root-fibres will be hastened. All roots that are inclined to grow in a downward direction should be cut away, unless they can be made to grow horizontally. Planting should not be done when the soil is in a wet or heavy condition; it is far better to defer the operation until a more favourable time; but it must be remembered that trees planted early in autumn usually become well established before the winter. Do not plant the roots too deeply; the top roots should not be

more than 6 inches below the surface of the ground. Roots will readily grow downwards into unsuitable soil, but it is a difficult matter to entice them to grow near to the surface, unless the border slopes at a very sharp angle, which is not desirable. Where crops of vegetables are grown between fruit trees, the necessary digging must be done carefully, for if the roots are injured, canker may put in an appearance, and suckers will form. If the planting is followed by a spell of dry weather, the soil around the newly-planted tree should be kept in a moist but not sodden condition. Watering must be regulated according to the state of the soil and conditions of the weather: too much moisture will cause many of the root-fibres to die. It is very rare that trees planted in the autumn require more than one copious application of water at the roots, but frequent syringings overhead are beneficial.

DISTANCE OF PLANTING THE TREES.—Trained trees for growing on walls 10 to 12 feet high may be planted at the following distances apart—Apples, 18 to 20 feet; Apricots, 20 to 24 feet; Cherries, 12 to 15 feet; Figs, 16 to 18 feet; Pears, 25 to 30 feet; Peaches and Nectarines, 12 to 15 feet; and Plums, 18 to 20 feet. In the case of standard or half-standard trees in the open, Apples, Pears, and Plums should all be placed 20 to 30 feet apart; but pyramidal and bush trees need only 10 to 12 feet between them. Gooseberries and Currants should be planted not closer together than 5 or 6 feet.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen-Garden Foreman, Royal Gardens, Windsor.

TURNIPS.—Late-sown Turnips should be thinned to 6 inches apart in the rows. The crop, if allowed to remain in the ground over the winter, will prove valuable in the spring, for apart from the roots, the green tops will furnish useful greens, which promise to be a short supply this season. Afford frequent waterings whilst dry weather continues, and dust the plants freely with fine wood ashes in the early morning to keep the Turnip fly in check and stimulate the growth of the plants. The frequent use of the Dutch hoe between the rows will assist the plants to make a free growth.

BET.—Plants of the earliest sowing should be lifted without delay or the roots may become coarse and tough. Late-sown Beet should be watered freely. This late crop will prove valuable during the spring if the roots grow to a sufficient size before frost sets in. Hoe the soil between the rows as frequently as possible and never allow it to remain caked after watering the plants.

CARROTS.—The main crop of Carrots should be lifted and stored as soon as possible, or many of the best roots will split after the first heavy rain. Late-sown Carrots should be watered freely if dry weather continues; thin the plants to prevent overcrowding. Hoe the ground between the rows and do all that is possible to hasten the development of the crop before the season is far advanced.

LEeks.—The Leek is a cross-feeding plant, and should have frequent applications of weak, liquid manure. There are few plants which repay the cultivator better for generous treatment than the Leek. After each watering, let the soil be stirred with a hoe to encourage a free growth. Further plantations of this vegetable may be made from plants of late sowings to provide supplies in April and May.

GLOBE ARTICHOKEs.—Plants of Globe Artichoke should not be allowed to become too dry at the roots. If the bed has been mulched during the summer the plants will be much finer next season, as mulches not only provide food, but also keep the soil moist.

CUCUMBERS.—A batch of plants should be planted now to afford supplies of Cucumbers during January. A gentle bottom heat should be provided to promote a free growth, as it will be an advantage to have the plants well furnished with growths before the dull weather sets in. Train the shoots carefully, allowing plenty of room between them. Pinch the side shoots frequently to promote a sturdy growth, and remove the fruits until they are required, and then only allow a sufficient number to develop necessary

for the requirements of the establishment. A humid atmosphere with a night temperature of 70° should be maintained.

THE APIARY.

15333-38.

TO REMOVE BEES FROM AWKWARD PLACES.—During the summer many swarms take up their abode in very awkward places, causing inconvenience and worry to the nervous. The stray swarms often take up their abode between floor and ceiling, having gained access through a ventilating brick, or in roofs, through defective slates or eaves, or in hollow trees. Sometimes people attempt to take the bees and honey by removing boards or slating, and they find, to their utter amazement, that they have made a great mistake, for it is not like overhauling a bar frame hive, as they imagined. Some of the most expert beekeepers have met with unexpected failure in their attempts to take the bees. The following method, though slow, is sure, easily accomplished, and safe. First, close all the means of entry and exit except one. In roofs, this may be done by the aid of putty, or even paper, if closely packed into all the crevices. The position should be closely watched during the day to make certain that every opening save one has been closed. If a weak colony inhabits a straw skep, this will suit admirably for the next part of the business. A floorboard should be securely roped on the hive. Failing this, a small box big enough to take three or four frames should be made roughly, nailing on a floorboard, and roping on a roof. In the late evening, when the bees are not on the wing, take a "Porter Bee Escape" fixed on a piece of wood, with a hole in the centre, which should coincide with the hole used as an entrance for the bees to the roof or other place. Fasten it down, packing it all round with putty to make the bees pass through the escape. Near or above the escape, fix the colony in the skep, or nucleus in box, with a queen, frame of brood, workers, and frames containing stored honey. The bees, finding themselves shut out of their old home, will join with those used as a decoy, generally uniting with them without trouble or fighting. To completely secure all the bees it will need about three weeks, and the only attention required will be to see that the bees have found no other opening by means of which they can leave or enter their old nest. At the end of the time, the trapped bees may be removed to the apiary, and, if necessary, the slates or boards, etc., may be removed and the stored honey easily taken by the aid of the smoker.

PURCHASING BEES.—At this season of the year many beekeepers are ready to sell all or part of their stocks and appliances. In some instances, the price is very low, and, therefore, tempting to those who know little about beekeeping, but are most anxious to make a start. Such offers need careful consideration, because the colonies may be diseased, and, consequently dear at any price. If a beekeeper can be induced to examine the colonies, it would be wise to obtain his expert advice, even if the novice has to pay for it. Failing this, no bees nor appliances should be purchased without a written guarantee from the vendor that the apiary is free from disease.

MOVING THE BEES.—Having decided to purchase the bees, the best method of removing them has to be determined. Unless the new home is 1½ to 2 miles away, it cannot be done until the weather is too cold for the bees to fly. In the evening, after sunset, give the bees a puff of smoke through the entrance to drive in those on guard. Afterwards, close the entrance, then open the hive, and as the quilts are removed, smoke between the frames to drive down the bees. Next screw down the lugs of the frames by the aid of two strips of wood, then place a piece of perforated zinc over the frames, put on the roof, and make all safe by roping all together securely. To prevent the combs being broken by jolting, put a good layer of straw in the bottom of the cart. In order to prevent loss of bees, place a branch in front of the entrance, and screw-down laths the rope, perforated zinc, and crewed-down laths. Re-opening the entrance and replacing the quilts. This will obstruct the bees when taking their first flight, and cause them to take note of the new position.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants to name, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a confidential record.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unaccepted communications, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matter which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, SEPTEMBER 26—

Roy. Hort. Soc. Com. meet. Vegetable Competition (hereafter at 8 p.m. by Mr. H. Senn, on "Salads.")

WEDNESDAY, SEPTEMBER 27—

Watford Fl. Sh. Irish Gard. Assoc. and Benev. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—64.9°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, September 20 (6 P.M.): Max. 65°; Min. 58°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, September 21 (10 A.M.): Bar. 29.5°; Temp. 59°; 11 other—Sunshine.

PROVINCES.—Wednesday, September 20: Max. 60° Southampton; Min. 49° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY

AND FRIDAY—
Dutch Bulbs, at 67 & 68, Cheapside, by Protheroe & Morris, at 10.30.

MONDAY, WEDNESDAY, AND THURSDAY—
Dutch Bulbs in variety, Roman Hyacinths, Freesias, Liliums, &c., at 67 & 68, Auction Rooms, 38, King Street, Covent Garden, at 12.30.

TUESDAY—
Sale of Nursery Stock in Variety at the Cottage Nursery, 110, Brockley Road, S.E., by Protheroe & Morris, at 12.

WEDNESDAY—
Trade Sale of Liliums and Miscellaneous Bulbs and Plants, at 2: Palms and Plants, at 5; at 67 & 68, Cheapside, by Protheroe & Morris.

The Influence of External Conditions on the Form of Plants.
It is a commonplace and universally recognised fact that plants respond to changes of external conditions in various ways, among others, by changes of form. The Gorse, *Ulex europæus*, when cultivated in a moist atmosphere, ceases to produce spines, and may continue to form leafy shoots like those of the seedling. Rosette plants, under similar conditions, undergo a marked alteration of habit. The stem, which, in ordinary circumstances, is short, elongates, and hence the leaves, instead of forming a rosette, are borne in a loose spiral on a miniature tree-like stem. Instances of this plasticity might be multiplied indefinitely, and are recorded in all the botanical text-books. Nevertheless, the exact extent to which the normal form of a plant is the outcome of environmental influences remains unknown, and can only be determined by laborious experiment. Yet the solution of this problem is essential to an understanding of many of the most important phenomena exhibited by plants; for example, those concerning the

variation which plants exhibit, which variation, by common consent is the starting point in the origin of new forms of plants.

In order to make a beginning of the experimental investigation of the influence of external conditions in moulding the form of plants, it is not necessary to seek for examples of remarkable deviation from characteristic structure. Every plant in the course of its life-history presents the most remarkable instances of changes of form which may serve as the bases for investigation. Thus, a plant passes the first part of its life in a vegetative stage, later it produces new organs and assumes a reproductive condition. Hence the general problem of the influence of external conditions in determining plant form may be investigated by the attack of the special problem. This special problem may be stated thus: are the changes of state which a plant undergoes in the course of its life-history determined by external conditions, and, if so, what are these conditions? The brilliant researches of Professor Klebs, of Heidelberg, have for their point of departure this special problem, and the results which he has obtained are of such general importance as to deserve the attention not only of botanists but of all horticulturists.

For purposes of convenience, it will be well to divide our account of these researches into two parts. For the present we will deal with the evidence provided by the lower plants, and on another occasion with that provided by flowering plants. It will be evident at once to everyone with a knowledge of the structure of plants that the lower plants serve for the kind of experiment with which we are now concerned far more readily than the higher plants. The simple fungi and algae consist of single cells or of threads made up of similar cells. These cells are each exposed to the air or water or earth in which they live. They are therefore more directly at the mercy of their environment than are the many-celled complex higher plants.

If, therefore, change of one or other condition of the world in which the simple plant lives, produces a definite effect on the form of that plant, it should be readily recognisable. When we consider the life-history of one of the simple fungi or green algae, we find that it exhibits a certain train of events, which appear to succeed one another with certainty, and, indeed, inevitably. Take, for example, a fungus studied by Klebs, *Saprolegnia mixta*, a saprophytic organism which is met with commonly in the bodies of dead insects in stagnant water. A spore falls on a dead insect; the spore germinates, and grows, to form a group of threads (the mycelium), which penetrate the dead body in all directions. This is the vegetative stage. After some days, the threads grow out from the body into the water, and produce at their tips vast numbers of zoo-spores, which are liberated, swim away through the water, and, perchance, find a new insect on which to settle. This is the stage of non-sexual reproduction. Yet, later, when the actively-growing mycelium has nearly exhausted the nutriment contained in the tissues of the dead insect, the fungus passes into its

third stage, that in which sexual organs are formed. The egg-cells which it produces may be fertilised by male cells, and resting spores are produced, which spores are capable of lying dormant for months before they germinate.

By means of a laborious and ingenious series of experiments, Klebs has shown that the apparent inevitability of this succession of events—vegetative phase, phase of asexual propagation, phase of sexual reproduction—is nothing but an illusion. Grow the mycelium of this fungus in a rich, nitrogenous medium, and it continues its vegetative stage indefinitely. All that is necessary to maintain the fungus in the vegetative stage is to transfer it occasionally from one rich nutrient solution to another similar solution. By this means, Klebs has cultivated the fungus in its mycelial state for no less a time than six years.

Again, by transferring the mycelium from a rich nutrient solution to one poor in food, the second phase—that of formation of asexual spores—is produced with certainty and despatch. And, again, by cultivating it on certain kinds of food, limited in amount, Klebs has shown that the fungus passes into stage three, that in which it produces its sexual cells, and, having done so, dies. When certain inorganic salts are withheld, egg-cells only are produced, and these egg-cells develop parthenogenetically into new plants. If, on the contrary, inorganic salts, and particularly phosphates, are provided, male cells as well as egg cells are formed, and sexual reproduction takes place.

Two impressive facts emerge from these experiments. One, that the several stages in the life-history of this organism are determined absolutely and completely by definite external conditions. The other, that, as shown by the behaviour of the mycelium supplied with rich food, under definite, constant conditions, the fungus undergoes no change of state, but remains for years in its vegetative, mycelial form.

It will be observed at once that the regular succession of stages as observed in the fungus when it invades the body of a dead insect, is also due to regular changes of conditions of food supply. Phase 1: vegetative or mycelial; continues so long as the dead body provides plenty of nitrogenous food. Phase 2: asexual propagation; begins at the tips of the threads as soon as they have grown some distance out into the water, which is, of course, relatively poor in nitrogenous food material. As bees swarm and leave a crowded hive, so do the spores of *Saprolegnia mixta* produced in swarms swim away from the no longer congenial spot. Phase 3: sexual reproduction; occurs as soon as the supply of food material in the body of the insect falls below a certain minimum. At any moment, by providing appropriate conditions, any phase may be induced.

These facts will appeal to the gardener with singular interest, for he will recognise that the facts learned from this simple fungus are those that he has learned already, if in less precise fashion, from his observations on flowering plants. He



GAYALII (SYN. PLAGIANTHUS LYALLII); FLOWERS WHITE.

Photograph by F. J. Wallis.

knows the value of rich nitrogenous manures in inducing luxuriant vegetative growth. He has seen, for instance, manures applied to market gardens at the rate of 50 or more tons to the acre. The gardener knows that such supplies as this would be inimical to flower production, and that it is useless to expect good fruit crops if the roots of trees are too heavily manured. Again, every grower knows how sterile of flowers are Potatoes grown in this country. That this sterility is due to the continuous cultivation of the plant in rich soil would seem to follow both from Klebs's investigations and also from the fact that in countries such as Brittany, where manure is applied but sparingly to the soil, the Potato fields in summer are a mass of bloom. The grower who is endeavouring to raise fresh varieties of Potato from seed might well take this fact into consideration, and instead of carrying out his trials on rich soils, try them on poorer ground. For, as he knows too well, not a few of our good varieties fail altogether to produce pollen, and hence cannot be used freely in breeding experiments.

From our knowledge of horticultural facts, and from Klebs's studies of the behaviour of the lower organisms, we are encouraged to conclude that the laws of Nature are no local by-laws, but that they run throughout her realm. How these laws are rendered obscure by the complex conditions obtaining in the flowering plants, we shall endeavour to show in a subsequent article.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committee will take place in the Society's Hall, Vincent Square, Westminster, on the 26th inst., when special prizes are offered for vegetables. At the 5 o'clock meeting a lecture on "Soils" will be given by Mr. C. HERMAN SEISS.

FLOWERS IN SEASON. Blossoms of the pretty *Calceolaria Golden Glory* are sent us by the raisers, Messrs. ROBERT VEITCH & SON, Exeter, these having been culled from plants which had already bloomed earlier this season. In a note accompanying the flowers, Messrs. ROBERT VEITCH & SON state that plants growing in the open have yielded a bountiful supply of seed, and, after these were harvested, the plants developed this second crop of flowers.

APPOINTMENT FROM KEW. We learn from the *Kew Bulletin* that Mr. J. J. NOCK, a member of the gardening staff of the Royal Botanic Gardens, has been appointed Curator of the Hakgala Gardens, Ceylon, by the Secretary of State for the Colonies, on the recommendation of the Director.

A TRAINING COLLEGE GARDEN.—On the 16th inst. Lord PENTLAND, the Secretary for Scotland, opened the College Garden which has been formed at Mains, near Dundee, by the St. Andrew's Provincial Committee for the Training of Teachers. The garden forms part of 3½ acres of ground leased for the purpose. Nearly £2,000 have been spent on the building of greenhouses, a potting shed, a lecture hall, and a rock-garden and pond. Although the formal opening only took place on the 16th inst., about 40 students from the Training College and several country schoolmasters have already commenced a course in horticulture.

CHRYSANTHEMUM CONFERENCE.—As will be seen on reference to p. 229, the National Chrysanthemum Society will hold a conference on December 4. Papers will be read by Mr. F. W. LADDS, on "The Culture of Disbudded and Spray Blooms," and Mr. PERCY CRAGO, on "Soil Preparation and the Use of some Chemical Foods." An exhibition will be held in conjunction with the conference.

ROSES AND OYSTERS.—Colchester is famous for its Roses and oysters, and it is appropriate that the annual oyster feast of the town, to be held on October 12, will have as its president Mr. FRANK CANT, of the firm of FRANK CANT & CO., Rose nurseries, Colchester, in his official capacity as Mayor of the borough.

FUNGUS FORAY. The annual fungus foray of the British Mycological Society was held during the past week in Somersetshire, this being the fifteenth annual outing. The president this year is Mr. E. S. SALMON, of the South-Eastern Agricultural College, Wye. At Taunton, on the 19th inst., Mr. E. W. SWANTON, of the Educational Museum at Haslemere, gave an illustrated lecture on fungi. He said that orchard trees in Somersetshire were largely infected with fungous diseases, and advised the growers to practise spraying.

"THE BOTANICAL MAGAZINE."—The *Botanical Magazine* for September contains illustrations and descriptions of the following plants:—

ACINETA MOOREI, tab. 8392.—A plant of this new species was purchased from Messrs. SANDER & SONS, Bruges, in 1903, for the Royal Botanic Garden, Glasnevin. It flowered for the first time in 1905, and not again until 1909. It is smaller than most of the known species, less vigorous, but a good grower. The flowers are showy, sub-globose, straw-coloured closely punctulate with brown spots. Sir FREDERICK MOORE states that the plant thrives well in a mixture of Osmunda fibre, good peat, and charcoal in a basket suspended from the roof of an intermediate Orchid house with a minimum night temperature of 55° Fahr.

VIBURNUM HENRYI, tab. 8393.—Illustrations of this new Chinese species were published in *Gardeners' Chronicle*, October 8, 1910, the plant in flower forming a supplementary illustration, and the same plant in fruit was figured on p. 109. The *Botanical Magazine* plate shows the fruits to be coloured coral-red, but they deepen as they ripen until nearly black.

SENECIO SAXIFRAGOIDES, tab. 8394.—This New Zealand species is described as most closely allied to *S. lagopus*, Raoul, but it is of stouter habit, with larger and thicker leaves, more densely villous on the upper surface. The *Botanical Magazine* plate has been prepared from a plant in the collection of New Zealand plants brought together by Mr. H. H. TRAVERS, and disposed of by auction by Messrs. PROTHEROE & MORRIS in 1908. It was planted with various species of *Olearia* in an unheated frame, where it grew well and flowered freely in the summer of 1910. The flower-heads and bright yellow flowers are very effective, and it is thought that the species may prove hardy in England, in which case this should be a useful plant for the rock garden; it is a perennial and grows 1 foot high, whilst its evergreen foliage is very handsome.

CLEMATIS CHRYSOCOMA, tab. 8395.—This Chinese plant is said to approach very closely to the Eastern Himalayan form treated by Mr. BRÜHL as var. *chumbica*, of *C. montana*. It differs chiefly from the Chumbi Valley plant in its coarser indumentum, and it is possible that the two may not be specifically distinct. But until a revision of the numerous varieties of *C.*

montana recognised by BRÜHL has been effected, Mr. SPRAGUE states that it is desirable to maintain *C. chrysocoma* as a separate species. The plant was presented to Kew by Mr. M. L. DE VILMORIN in the spring of 1910. It grew freely during the summer, and flowered abundantly from the old wood, but at the first frost died down to the woody base, so that it was necessary to take up the plant and house it during the winter. It is a shrub of low stature, with erect or decumbent pale-brown, sparingly hairy branches. The flowers are produced on short, leafy twigs; the sepals are white with a rosy margin.

IMPATIENS HERZOGII, tab. 8396.—The *Botanical Magazine* illustration of this species from New Guinea recalls the appearance of *I. Hawkeri*, and Sir JOSEPH HOOKER states that *I. Hawkeri* Bull. is its nearest ally. A plant of *I. Herzogii* was raised at Kew from a cutting sent from the Royal Botanic Garden, Glasnevin, where plants were raised from seeds sent by Dr. R. SCHLECHTER from German New Guinea. It grows freely, flowers abundantly, and is amenable to very varied cultural conditions. It has survived the winter, and flowered well in the cool moisture of an Odontoglossum house in a night temperature of 50° Fahr.; in the dry atmosphere of a Cactus house, and in a bright stove pit with a night temperature of 65° Fahr., but the stove provides the most suitable conditions for the plants, which require a rich soil, and may be readily propagated by cuttings. It should be said that whilst *I. Hawkeri* is partially hairy and has dark red flowers, *I. Herzogii* is perfectly glabrous, and has vermillion-coloured flowers. Whilst therefore it is easy to separate them from an horticultural point of view, Sir JOSEPH HOOKER points out that there is little room for doubt that they are forms of the same species.

BLACK GRAPE DIRECTEUR TISSERAND.—A bunch of this Grape was shown before the Fruit Committee of the R.H.S. on the 12th inst., and a bunch of Alnwick Seedling, with which it was thought to be synonymous. Directeur Tisserand was raised by MM. ETIENNE SALOMON ET FILS, at their vineyards at Thomery (Seine-et-Marne, France), a village about 5 miles from Fontainebleau, and celebrated for its vineyards of Royal Muscadine (syn. Chasselas de Fontainebleau, White Sweetwater, &c.), the common Grape of the French restaurants. In the descriptive catalogue of vines issued by the raisers (1903 edition), which includes 2,265 names of varieties, many of them mere synonyms, Directeur Tisserand is described as an early variety, or only 12 to 15 days later than Royal Muscadine; the bunches above medium size, bluntly conical; the berry large, ovoid, hammered (mar-telé), handsome, black, with fine bloom; a good keeper; growths short. As compared with Alnwick Seedling, therefore, the bunches should be smaller, and the berry not so round, whilst it should ripen three weeks earlier, when grown in the same conditions.

A GARDEN OF WEEDS.—In a report on school gardening presented by the committee at the annual convention of the Society of American Florists it is stated that, at Amherst, Massachusetts, a novel illustration of object teaching was instituted by Dr. BEALES, of the Michigan Agricultural College, who started as a part of the school garden a weed garden patch, so that the children could learn to distinguish destructive and undesirable vegetation.

PUBLICATIONS RECEIVED.—*Peru To-Day*; a monthly account of Peru's development. (Peru: The West Coast Publishing Co.) Price 6d.—*Orchids for Amateurs*, by Alwyn Harrison; edited by T. W. Sanders. (London: W. H. & L. Collingridge.) Price 2s. 6d.

GAYA LYALLII.

(See Supplementary Illustration.)

THE recommendation of T. H. C. in *Gardeners' Chronicle*, July 29, p. 75, to plant this tree on an eminence so that the flowers may be better seen is good advice so far as most localities are concerned, but it does not apply in favoured situations such as Cornwall, where *Gaya* (*Plagianthus*) *Lyallii* flowers so profusely that the leaves are almost hidden. It is to be regretted that this fine plant is not more frequently cultivated, especially in those localities where it is known to succeed.

As pointed out by T. H. C., the figure of *Gaya* *Lyallii*, which appeared in the issue for July 22, scarcely conveys a correct idea of the appearance of the flowers as they appear on the growing plant. The present Supplementary Illustration illustrates the correct pose of the flowers and the details of their structure.

Several changes have taken place in the nomenclature of this plant, and it has been placed successively in the genera *Sida*, *Hoheria* and *Plagianthus*. In the *Journal of Botany*, vol. 30, 1892, Baker describes it under the name of *Gaya* *Lyallii*, and this name is retained by Cheeseman in his *Manual of the Flora of New Zealand* (1906). In this latter work the tree is stated to be one of the most beautiful in the New Zealand flora. It occurs in the South Island from Nelson to Otago, sometimes at an elevation of 3,500 feet, often forming a fringe to the sub-alpine Beech forests. At high elevations the tree is deciduous, but in the river valleys of Westland, where it is abundant, it is evergreen. In New Zealand the tree is stated to attain to a height of from 15 to 30 feet. The pure white flowers are produced in axillary fascicles of from 3 to 5, being rarely solitary; they are apparently of two forms, one having long styles almost equalling the stamens, and another with styles less than half as long. A variety is included in the appendix to Cheeseman's *Flora* under the name of *ribifolia*. This is stated to be a distinct-looking plant with leaves deeply lobed or incised, usually smaller and less acuminate than those of the type, and with the stellate pubescence more conspicuous, especially on the under surface. This form is abundant in many parts of Marlborough and Canterbury, occurring usually on the lower ranges flanking the eastern side of the Southern Alps, whereas the type is more common in the humid climate of Westland. H. Spooner.

BRITISH ASSOCIATION.

ADDRESS TO AGRICULTURAL SUB-SECTION.

THE address by the chairman of the sub-section, Mr. W. Bateson, F.R.S., to the agricultural sub-section must have been listened to with interest by all serious students of agriculture and allied arts.

Mr. Bateson began his address by pointing out that, with the institution of the Development Grant, a national subsidy was provided on a considerable scale in England for the first time, and that the conditions under which it might most successfully be applied were matters for careful consideration. Other nations had made enormous efforts in this direction, and we had their experience to guide us. While fully appreciating the valuable results that had already been obtained wherever agricultural science had been properly organised, he could not help asking whether the whole outcome might not have been greater still. The supposed necessity for satisfying a public opinion, which demanded rapid returns for outlay and preferred immediate apparent results, however trivial, to the long delay which is the almost inevitable accompaniment of any serious production, was responsible for much. It could not be too widely

known that, in all sciences, research is nearly always a very slow process. If this is true for new industries, chemical and electrical, for instance, still more is it the case in an ancient art like agriculture.

An applicable science must be created before it could be applied. It was with the discovery and development of such science that agricultural research would for a long time best occupy its energies. To tell a man that he must not pursue an enquiry further because he could not foresee an immediate application of the knowledge he would acquire was almost always a course detrimental to the real interests of the applied science.

In this country, where the Development Commission would be for many years presumably the main controller of agricultural research, the constitution of the Advisory Board formed a guarantee that broader counsels would prevail; and it was to be hoped that the future administration of this work would be guided in the same spirit.

We should beware of giving false hopes. Why not take the farmer and gardener into our confidence and tell them that in these things science was only approaching the experimental stage? To affect otherwise would be unworthy of the dignity of science. So only would the confidence of the laity be assured towards research. In spite of the imposing results already obtained by breeders, he found almost all had some ideal not yet attained: that they were looking to scientific research to help them obtain results with greater ease and certainty. In certain selected cases science was able to help these enquirers, and if the practical man and the science student could combine their respective experiences, he believed that these cases would be found to be very numerous.

The modes by which combinations could be made and new forms fixed were, through the recent developments of genetic science, now reasonably clear; and with that knowledge much of the breeders' work was simplified.

One of the interesting examples Mr. Bateson mentioned was Mr. H. M. Leake's work on the "Cotton of India." The cottons of fine quality grown in India are late in flowering. In the United Provinces a comparatively early-flowering form is required. Hitherto, no early form of high quality has existed, but Mr. Leake has now made the combination needed. It is safe to say that this practical achievement could not have been made with such rapidity and certainty until the development of genetic physiology by Mendelian analysis.

One of the greatest advances claimed for this work was that it should induce raisers of seed crops to take more hopeful views regarding their absolute purification than has hitherto prevailed. It is at present accepted as part of the natural perversity of things that most high-class seed must throw "rogues." This view may be correct, but more probably we should regard these rogues either as the product of a few definite individuals, or as chance impurities. In either case they can presumably be got rid of.

The "bolting" of crops grown as biennials, especially root crops, was referred to as another important class of cases to which similar considerations apply.

Whether the loss due to these causes would prove preventable or not, one thing was certain: we had now the power to formulate rightly the question which the breeder was to put to nature, and the method by which he could obtain an answer to his question, in whatever sense that answer might be given.

Yet had Mendel's eight years' work been done at an agricultural school, supported by public money, one could imagine much shaking of heads on the county council governing that institution at investigations of the seemingly barren problem, "What is a species?"

Another line of research Mr. Bateson thought likely to lead to economic results was an investi-

gation of the nature of variation in size of an organism or its parts.

What, again, he enquired, was the cause of self-sterility? American experimenters were, no doubt, right in attributing the failure of large plantations of a single variety of Apple or Pear in a high degree to this cause.

And what was the meaning of the wonderful increase in size or in "yield," which so often followed a first cross? This fact had been made use of in breeding stock and raising table poultry. It has been suggested by Mr. G. N. Collins, of the U.S. Department of Agriculture, that it might be applied in the case of Maize. The cross is easy to make on a commercial scale, and the increase ranges as high as 95 per cent. Mr. Bateson believed that, to understand the meaning of these phenomena would be an addition to human knowledge of very great significance.

In the application of science to agriculture, chemistry very properly and inevitably had come first, while breeding had remained under the control of commonsense alone. Much, however, as the student of the conditions of life had done and could do for agriculture, the breeder could do more. If one had a Wheat of poor yield, no amount of attention to cultivation or manuring would give a good crop. An animal that was a bad doer would remain so in the finest pasture.

In conclusion, the lecturer said he wished to sound the same note with which he began: if we were to progress fast, there must be no separation between pure and applied science. The practical man and the science student had everything to gain from free interchange of experience and ideas.

BACTERIOTOXINS IN THE SOIL.

In a paper read before the Botanical Section of the British Association, Prof. W. B. Bottomley gave an account of his recent experiments on the occurrence of toxins, injurious to germination and growth, in soil and manure.

He finds that an aqueous extract of well-rotted manure or fertile soil, after filtering through a Fukaal filter, has an injurious effect on the germination of seeds, and on their further growth in sand-cultures, even when supplied with normal food solution.

This effect of the extract can be destroyed by boiling, and the boiled extract, although slightly retarding germination, has a beneficial effect on the further growth of the seedlings.

The extract was also found to have a marked influence on the growth of certain soil organisms. It stimulates the growth of denitrifying bacteria and inhibits that of the nitrogen-fixing bacteria, both these effects being absent when boiled extract is used.

It is suggested that the harmful effect is due to the presence of bodies, probably of the nature of toxalbumoses, formed in soil and in manure by the activities of the putrefying and denitrifying bacteria. By heating, the toxic effect is destroyed, and the substance rendered available as a nutriment.

These observations are of interest for comparison with those of American observers, who conclude that toxic substances are excreted by the root-hairs of certain plants, and also with the recent experiments on soil sterilisation carried out at Rothamsted.

FIXATION OF NITROGEN BY MYRICA GALE.

PROF. BOTTOMLEY has recently investigated the nodules which occur on the roots of the Sweet Gale (*Myrica* *Gale*), with the view of determining whether they are concerned with the assimilation of atmospheric nitrogen, as he believes to be the case for the similar structures on the roots of *Podocarpus*, the *Cycas*, *Alder*, and members of the *Eleagnaceae*.

He finds that the root-nodules of *Myrica* arise as modifications of normal lateral roots, which by branching repeatedly and by the growth of a

thin rootlet from the apex of each nodule, give rise to the characteristic "clusters" on the main roots.

Branching is due to the outgrowths of lateral roots which become hypertrophied. In section, the cortical tissue of the young nodule shows numerous "bacterial cells," in which the bacteria can be identified by suitable staining.

Towards the apex of the nodules, injection threads, quite similar to those seen in the nodules of leguminous plants, can be seen passing from cell to cell, and the whole structure is protected by a corky external covering.

Pure cultures of the bacteria from the bacterial cells show small rod-like organisms, identical in appearance and structure with *Pseudomonas radicola*, the bacillus concerned in the formation of leguminous nodules, and the culture give a definite fixation of nitrogen when cultivated in Erlenmeyer flasks. In one such experiment, the flask inoculated with the bacteria contained 2.58 milligrams of nitrogen per 100 c.c. at the end of the experiment, as compared with 0.53 milligrams in the control flask not inoculated. Sterile plants of *Myrica* injected from cultures soon developed the characteristic nodules.

Prof. Bottomley concludes that the root nodules of *Myrica* are of the same nature as those of *Alder*, *Cycas*, and the *Elæagnaceæ*, and play the same part in the economy of the plant.

THE BRITISH FLORA AND ITS RELATION TO THE GLACIAL PERIOD.

A DISCUSSION on this subject took place at a joint meeting of the Botanical, Geographical, and Geological Sections of the British Association, the presence of many distinguished foreign plant geographers making the occasion one of special interest.

The plant population of the British Isles at the present day consists chiefly of a selection of species common to northern and middle Europe, peculiar elements being the so-called Lusitanian flora of Cornwall and S.W. Ireland, certain North American species found sparingly in Western Ireland, and the Alpine flora of the uplands.

Evidence of complete glaciation occurs everywhere north of the Thames and Severn, and although there is no direct evidence of the presence of an ice-sheet south of the Thames, remains of Arctic animals and plants have been found in Wiltshire and Devonshire, and erratic boulders, probably ice-transported, have been found in Tor Bay and at Selsey, pointing to the existence of icebergs and a cold sea bounding the southern coasts. From this evidence it is difficult to believe that a pre-glacial temperate flora could have survived such severe conditions, and this is the view held by Mr. Clement Reid, who opened the discussion. With the exception of the Alpine flora referred to above, he believes the plant-population of Britain to be entirely composed of Colonists, which have come in since the last glacial period. Such facts as the occurrence of Spruce as a native in pre-glacial times, but not at present, confirm this view.

Prof. Drude, of Dresden, disagreed, and holds, from a comparison with the present flora of Greenland, that many temperate species may have survived the glacial period in the more sheltered situations. With regard to the Lusitanian and Alpine ingredients of the flora, Mr. Lewis drew attention to the possibilities opened up by a consideration of changes of level of land and sea in past glacial times, which, if of any magnitude, would to some extent affect climates, and provide land communication between Great Britain and Ireland and the Continent. Evidence pointing to such changes having occurred exists in the terrestrial peats on the Dogger Bank and elsewhere, at or below the present sea level. He criticised comparison with the Krakatoa flora, in view of the great difference in the factors concerned in plant-distribution under tropical conditions.

Prof. Ostenfeld, of Copenhagen, supported Mr. Reid, and considers the introduction of the Lusitanian species as probably due to winds and birds, although the possibility of land-connections is not to be overlooked.

With regard to the origin of the Alpine flora some diversity of opinion still exists. The old view of Forbes that the Alpine species are survivors from the Arctic flora of the glacial period, driven to higher altitudes as more temperate conditions of climate began to prevail, still finds a supporter in Mr. Reid.

The more popular view at present is to regard them as the oldest Colonists of the existing flora, which came in from Central and Northern Asia at the close of the glacial period.

Further contributions to the discussion were made by Prof. Schröter, of Zurich, Dr. Stapf, Dr. Moss, and Mr. Arber.

(To be continued.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

AMERICAN MELONS.—During the past two seasons I have been attempting to grow American Melons, and at present I am not at all satisfied with the results. I have tried them on hotbeds, and have kept them in a moist atmosphere (except during flowering time), thereby getting plenty of vigorous growth and a good show of flowers, both male and female. I have tried the plants in cold frames with just a prepared mound of earth for each plant. Plenty of air was admitted to the frame, and it was kept as cool as possible, with the result that the plants developed wiry stems carrying small thick leaves and plenty of flowers; but still I could not get a set of fruits. After many hours spent in pollinating, airing, pruning, &c., the lights were thrown open day and night, and the plants left to chance, the result being several Melons set, but only two or three came to maturity, owing, I think, to the exhaustion of the plants during the early part of the season. These American Melons, although of rough appearance and of medium size, possess the most exquisite flavour. I think the seeds came from South America, where the plants grow in the open and get very heavy dews at night. *Sydney Lawrence.*

LARGE PEACHES. I was interested in reading the account of the weight of some Peaches (see p. 209), and I am sorry that I am not now able to send you a fruit of Sea Eagle. I gathered a few days ago, which turned the scale at 14 lb.; also one of Princess of Wales, which weighed 18 ounces. They were both very fine fruits. *J. L. Waterman, Sydhams Green, Faversham.*

CALCIUM CARBIDE RESIDUE.—Having read some notes in a recent issue of the R.H.S. Journal on the above subject and in various publications from time to time, I would like to add my experience, as there seems to be some uncertainty as to its safety and utility. Having had charge of a plant for the making of acetylene gas for several years, I have tried various experiments with the residue. As to its safety for horticultural use, I have found that when properly exhausted in the plant, it is thoroughly saturated with water, and this removes the greater portion of any poisonous matter. Such material may be applied to the soil at once, dug in, and the land cropped without any harmful effects. The method, however, of applying the substance is most important, as if applied in a wet state the particles cannot be so finely divided, and it remains in the ground in lumps, which set hard and help to disfigure the surfaces of roots and tubers. If laid aside for some months to get perfectly dry, it may be broken fine with the back of a spade, and thus be more evenly distributed. A heavy soil is benefited most of all by its use, and if used when trenching in every spit, will quickly break up and help to drain it. There seems to be no hard-and-fast rule as to the quantity to apply, but from one to four bushels per rod, according to the nature of the soil and the rate at which one requires to open it up, is a reasonable amount. I have used double this

quantity with all my plants to crops of any kind. The residue is a compound of lime and charcoal, therefore it supplies both grit and lime, and is required less on light soils than soils of a heavier nature. Where used fresh, it seems to rid the soil of troublesome insects, and I would advise that it be allowed to lay aside for a few days until it can be passed through a sieve to separate the particles. *A. Wheeler, gardener to Rev. Barclay Buxton, Wigan.*

ROSA HEMISPHERICA (see p. 198).—The following copy of a letter in my possession will be interesting to all Rose growers, as the writer is no longer with us:—"The Denary, Rochester, May 20, 1893. Dear Mr. Gilbert,—I gratefully appreciate your kindness in sending to a brother gardener the very beautiful Roses which I have just received. This 'Yellow Provence,' as rare as it is exquisite, is a sight to make an old man young, and when the Pope sends a golden Rose to some favoured disciple he can hardly give more pleasure than you have given to Yours sincerely, S. Reynolds Hole." The above letter refers to flowers which the late Mr. R. Gilbert, of Burghley, sent to Dean Hole. They were grown in a cool lean-to greenhouse facing south; the plants were raised from layers and planted in the border inside. The house did not contain any pipes or artificial means of heating. This method of cultivation is more certain to give good results than out-door culture, as the flowers are protected from damp, and my opinion is they did not produce the hard green eyes which I referred to previously as the great difficulty here in average seasons. Some interesting remarks may be found in Dean Hole's *Book of Roses*, pp. 169, 170, which also quotes a statement from a book by the Rev. Mr. Hanbury to the effect that this Rose flowered well "in the parching and dry summer of 1762." *W. H. Divers, Broom Castle Gardens, Grantham.*

GRAFT HYBRIDS (see pp. 161, 165).—I enclose a small portion of *Cytisus purpureus* raised from seed some 15 years ago. The seed was taken from a tree of *Cytisus Adami*, containing the *Cytisus purpureus* form. I also send specimens in flower of *Kitabelia Lindemathi*, which is said to have been raised by grafting *Kitabelia virens* on *Abutilon Thompsonii*. *R. Lindsay, Kinnear Lodge, Murrumbidgee, Millthorpe.*

BIGNONIA GRANDIFLORA. I can fully endorse what Mr. W. A. Cook says at p. 192 regarding the beauty and effectiveness of this hardy climber, as a few days ago I saw a plant of it in grand flower on a south wall at Orsett Hall, Major Whitmore's beautiful place near Grays. The sprays of large, well-developed purple and red flowers were very attractive, depending gracefully from the wall. The plant is growing in an ordinary border alongside a well-flowered and highly flourishing plant of *Magnolia Soulangiana*. The young shoots of the *Bignonia*, like those of the *Passiflora* and *Tæxonia*, should not be stopped but simply thinned out, otherwise long flowering shoots will not be obtained. I have known several people to fail in flowering the above-mentioned climbers through having pinched the points out of the young growth or shortened them with the knife, which process resulted in a thicket of young shoots but no flowers! *W. W.*

THE EFFECT OF THE DROUGHT.—The drought experienced during the present season will have a permanent effect on trees and plants growing in the open in this district. The roots will penetrate into the lower strata of soil in search of moisture, and this in the case of fruit trees is not to be desired. Here, then, comes in the great value of mulching, for if the mulch is applied in good time and kept moist, it will be found that the soil just under the mulch, and in some cases the mulch itself, is full of fibrous roots. To get the full benefit of the mulch it must be kept moist. Another circumstance I have noticed this season is, that seedlings of various plants growing in the open garden have exceptionally long primary roots, and in cases where they have been lightly watered daily, quite a mass of rootlets is formed in that layer of soil which has been kept moist, but below that layer there are barely any lateral roots, but just the long primary root growing straight down. *Sydney Lawrence, Manor Farm, Barkham, Wokingham.*

FRUITING OF THE POMEGRANATE (see p. 209).

—There is a fine plant of Pomegranate growing against a south-east wall in these gardens which has fruited for several years past. This year I counted a dozen fruits which are very pretty objects, appearing like red balls. The border in which the tree is planted was widened last autumn, and this, in conjunction with the hot, dry summer, has favoured the production of so many fruits. The tree is about 17 years old and about 9 feet in height. J. A. Hall, Shiplake Court Gardens, Heston-on-Thames.

A "GILBERT WHITE" MANUSCRIPT.

—Mention has been made in the daily papers of the recent sale of an hitherto unpublished manuscript by Gilbert White. It consists of a Nature calendar which the author of *The Natural History of Selborne* carefully drew up before he wrote the first of the letters which form the basis of the book. To the latter, he tells us, he meant to add an *Annus Historicus Naturalis*, and it seems that the manuscript was intended to be used in this connection. The Selborne Society will shortly produce the calendar (which is particularly interesting) in facsimile, and print a limited edition on Italian hand-made paper. Wilfred Mark Webb, Hon. Sec. of the Selborne Society, 42, Bloomsbury Square, London.

WASPS (see p. 209) —I recently dug out a

wasp's nest after placing cyanide of potassium in the entrance the previous evening. I succeeded in getting the nest out whole. It was cut through with a large knife, and was found to contain eight tiers of comb, the two lowest consisting entirely of queen cells, which I estimated to contain some 700 cells. We counted 250 young queens fully developed, and I noticed that the cells from which these had hatched were again resealed with eggs. I concluded that this nest must have contained in perfect young females, grubs in queen cells, and eggs, not fewer than 1,000 potential queens, each capable of founding a colony next season. This nest was the twenty-sixth I have destroyed this year. Arthur J. Coll, Fruit Grower, Holder's Hill, Hendon.

—Mr. Bartlett asks on p. 209 if any reader of the *Gardeners' Chronicle* has taken more than 42 queen wasps from one nest, and if it is the habit of wasps to breed so many queens in one colony. After many years' experience, I find that it is, and more especially at the end of the breeding season. In September, 1910, I destroyed a nest which contained 90 young queens. On previous occasions I have found as many as 120 queens in one nest. I have destroyed this season 300 nests on an estate of 500 acres, but have not found so many young queens this season; not more than 30 have been found in one nest. I fully endorse all Mr. Oldham has said on p. 192 about the wasp plague. I have used cyanide of potassium for destroying the wasps in the nests, and Scott's Wasp Destroyer on some of the wall fruit trees. This preparation is very effective, and keeps them in check for a time, but, as Mr. Oldham says, they seem as plentiful as ever. The Board of Agriculture and county councils would confer a great benefit to all fruit-growers if they encouraged the destruction of queen wasps in the spring and early summer. Prizes are offered at our local flower show for queen wasps, and this season no fewer than 1919 were captured. F. Edwards, Warnham Lodge Gardens, Sussex.

A CLOUD OF SPORES.

—A day or two after the fall of rain which terminated the long drought, I found the mowing machine, which was being used to remove dead bents on the lawn, enveloped in a cloud of greenish dust, which could be seen from a distance. On investigation, the machine was found to be covered with a greenish deposit; on the board next to the knives it was quite one-eighth of an inch deep, and on all parts it was thick enough to be rubbed off with the finger. Examined under the microscope, I found that the dust consisted of spores, and Mr. F. T. Brooks, of the Botanical Laboratory, identified them as those of ground moulds, including *Macrosporium*, *Cladosporium*, and *Alternaria*. Some of the spores readily germinated when placed in a drop of water on a glass slide. The grass during the very hot weather had almost been burnt up, and, from observations near by, the temperature of the ground a foot down had reached over 71°

F.; at a depth of 4 feet, the highest temperature has been about 65°. At one time the lawn was absolutely brown. It then began to get green by the ascendancy of *Lotus corniculatus*, *Crepis virens*, and other Composites, such as *Yarrow*, and various weeds. *Lotus corniculatus* has the appearance now of being able to make a fairly good dry-season lawn by itself. A dry season, such as we are experiencing, must tend to make a great change in the composition of turf and grass lands. In a few years I have noticed a considerable difference in the turf vegetation of this botanic garden, especially where it has been newly laid down from seed in years past, and it has become, on the whole, inferior, owing, most probably, to increasing dryness of the ground, due to surrounding drainage. One of the best lawn grasses we have here is *Poa trivialis*; but even this grass is now completely burnt up, except where the turf is shaded. R. Irwin Lynch, Botanic Garden, Cambridge.

SOCIETIES.**ROYAL HORTICULTURAL.****Scientific Committee.**

SEPTEMBER 13.—Present: Mr. A. W. Hill, M.A. (in the Chair); Messrs. J. O'Brien, J. Fraser, and F. J. Chittenden (hon. sec.).

Bulbophyllum orthoglossum.—Mr. O'BRIEN drew attention to this uncommon species (figured in the *Gardeners' Chronicle*, June 20, 1908, p. 406) shown by Sir JEREMIAH COLMAN, Bart., and which had been imported from the Philippine Islands.

Gall on Tanacetum, &c.—Mr. J. FRASER showed specimens of a gall on *Tanacetum vulgare* formed by the fly *Hormomyia tanaceticola*, both on the stem and in the leaf axils. It had been collected on the Thames bank near Richmond. He also showed the fasciated stem of a vegetable Marrow which showed about 40 ridges. Mr. FRASER remarked concerning the perpetuation of abnormalities that many appeared to depend upon merely local conditions, and could not be perpetuated, e.g., although he made cuttings from the abnormal stem of the Mint he showed last year with leaves displaced and showing other abnormalities, they had reproduced the normal type entirely this season.

Quince with felted growth.—Mr. FRASER also showed a Quince covered with hairy growth, somewhat similar to that seen on the young fruits, but here persisting to a late period.

Oats and Barley shooting after harvest.—Mrs. E. ROBERTSON sent specimens of Oats and Barley making a second growth after the harvest had been cut. The growth sprang from below the main stem, and bore flowers at the height of about a foot. They were collected at Limavady, Co. Derry.

SCOTTISH HORTICULTURAL.

SEPTEMBER 5.—The monthly meeting of the above association was held in the Goolf Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. Massie, the president, occupied the chair, and there were 80 members present.

Mr. Alex. Porter, market gardener, Davidson's Mains, read a paper on *Montbretia*. The most important use of the *Montbretia*, said Mr. Porter, was as a decorative subject for the flower garden, but it was also useful as a pot plant, and for cut flowers. The origin of the numerous varieties was *Montbretia crocosmaeflora*, a cross between *Crocsmia* (*Tritonia*) *aurea* and *Montbretia* (*Tritonia*) *Poppin*, raised by M. Lemoine, of Nancy, and sent out by him in 1882. The result of crossing the varieties of *crocosmaeflora* raised by Lemoine with *C. aurea imperialis*, a variety obtained by selection by Max Leichlin, of Baden-Baden, and *C. aurea maculata*, a South African variety, was the present race, to which Mr. Davidson, of Westwick House, Gardens, Norfolk, had contributed some notable varieties, including "Prometheus," probably the largest flowered variety in cultivation.

Mr. Porter recommended annual lifting and re-planting of the corms. He said his practice was to lift the plants in November, and, after the stems had died down, to store the corms in shallow boxes in light sandy soil, and kept rather

dry in a cool place where frost could not penetrate. They should be started in slight heat in March, hardened off in cold frames, and planted out in ground prepared in the ordinary way by digging and manuring in April. For pot cultivation, fibrous loam with some well-decayed manure and sand and a little bonemeal should be used, and the plants should be potted in winter or early spring, and treated as for outdoor culture. When the pots were well filled with roots, a little artificial manure might be given at intervals of 8 to 10 days.

The exhibits at the meeting were:—*Montbretia* and a variety of *Aster* shown by Mr. PORTER; *Lilium sulphureum* and *nepalense* and a dwarf *Kniphofia*, "Marie Dirken," from Messrs. DICKSONS & Co., Edinburgh; perpetual-flowering *Carnations*, grown in a small greenhouse in a back garden, from Mr. JOHN FRASER, East Northon Place, Edinburgh; seedling American *Tororaty*, from Mr. W. WILLIAMSON, Logic Green Nursery, Edinburgh; and *Polyporus versicolor* (?) from Messrs. JAMES GRIEVE & SONS, Edinburgh.

At the meeting on October 3, a conference and discussion on Early-flowering *Chrysanthemums* will be held.

WEST LINTON AND DISTRICT HORTICULTURAL.

SEPTEMBER 9.—Situated as this district is, 800 feet to 1,000 feet above sea level, it is one of the latest in Scotland; nevertheless fine vegetables and flowers are grown in the clear hill air. The annual flower show was held on the above date, and was a great success. Two groups of plants occupied the centre of the principal hall. One contributed by Mrs. WOODROO, Garvald House (gr. Mr. Haig), had a fine centre of *Lilium tigrinum Fortunei splendens*; the other came from Sir JAMES R. FERGUSON, Bart., Spittalhaugh (gr. Mr. Kennedy).

There were six classes for collections of vegetables, and between 20 and 30 collections, large and small, were put up.

In the open class for 10 kinds, Mr. D. KENNEDY, Spittalhaugh, was 1st; Mr. J. JOHNSTONE, Lamantha, 2nd. In the cottagers' class for 10 kinds there was a keen competition, and Mr. PHILIP SOMERVILLE, surfaceman, Macbiehill, was 1st; Mr. A. DALGLEISH, 2nd; and Mr. THOMAS MORTON, 3rd.

Potatoes were excellent in every class. Mr. SOMERVILLE and Mr. ROBERT DICKSON, Ironstone, being the chief winners. Mr. SOMERVILLE showed Perfection and Dobbie's Russet in splendid condition. Mr. DICKSON's best dish consisted of very fine tubers of British Queen.

The classes for Onions, Leeks, Parsley, Carrots, Shallots, and Cabbages were all well filled. Winningstads Cabbages were fine specimens, 10 lb. to 12 lb. in weight.

Mr. THOMAS YOUNGER was 1st for Violas; Mr. DAVID WAUGH, 2nd. The flowers were large and fresh. In future it would be well that only one variety be allowed in each bunch.

French Marigolds, beautifully striped, likewise *Antirrhinum*, annuals, *Asters*, 6 inches in diameter, and Sweet Peas were outstanding classes among the flowers.

Mr. D. MILLER, gardener to Dr. Ritchie Jeffrey, was 1st in both Sweet Pea classes, showing fine bunches of Maud Holmes, Tennant Spencer, Eita Dyke, Mrs. C. W. Breamore, Othello Spencer, and Constance Oliver. Mr. J. MOFFAT, Medwyn, was a good 2nd in the principal class.

Dr. RITCHIE JEFFREY put up a large collection of excellent Sweet Peas not for competition. It consisted of about 60 of the leading varieties, and formed quite a feature of the show.

SANDY HORTICULTURAL.

AUGUST 31.—The forty-third annual exhibition of the Sandy and District Floral and Horticultural Society was held in the park of Sandy Place on this date. Fine weather prevailed, and there was a large number of visitors.

In the floral and vegetable classes, the Misses FITZPATRICK, Bedford (gr. Mr. Birkenshaw), won no fewer than 15 1st, 14 2nd, and 2 3rd prizes. In the class for 48 Rose blooms, Mr. F. M. BRADLEY, Peterborough, and Mr. G. N. W. BIRCH, Peterborough, won the 1st and 2nd prizes respectively.

NEWTOWNARDS HORTICULTURAL.

SEPTEMBER 7.—The annual flower show of this Iris society took place on the above date. Despite the unfavourable season, the show was quite equal to those of former years. In the class for a group of plants in pots shown by amateurs who employ a gardener there were several meritorious exhibits. Lord DUNLEATH, Ballywalter Park, was awarded the 1st prize, and Mr. CHARLES DUFFIN the 2nd prize. The premier collection was remarkable for some excellent *Codiums*, which were relieved with Bamboos, Palms and Ferns. Mr. CHARLES DUFFIN, Belfast, excelled in the class for 10 stove and greenhouse plants, which included some beautiful specimens of *Codium* Mr. DUFFIN also won the 1st prize in the class for table plants, but he was placed second to Lord DUNLEATH in the class for six *Codiums*. Mr. JOHN STEVENSON, Newtownards, and Mr. W. J. FERGUSON, Newtownards, won most of the prizes in the classes for amateurs who do not employ a gardener.

In the nurserymen's classes Messrs. ALEX. DICKSON & SONS, Newtownards, put up a most imposing exhibit, in which hardy flowers were specially good. There was a close competition for 24 bunches of hardy border flowers. Mrs. EDWIN HUGHES, Craigavad, was awarded the 1st prize in this class; 2nd, Mr. P. KERR-SMILEY. Colonel WALLACE showed the best 24 bunches of Sweet Peas, whilst Mr. H. E. RICHARDSON was successful in the class for 12 bunches of Sweet Peas. Major DUNBAR BULLER was awarded the 1st prize for Show Dahlias. There was a keen competition in the class for a decorated table of fruit, and in a keen contest Sir THOMAS DIXON, Hillsborough Castle, obtained the premier award, being followed by Lord O'NEILL, Shane's Castle.

NATIONAL CHRYSANTHEMUM.

SEPTEMBER 11.—The Executive Committee met at Carr's Restaurant, Strand, on the above date, Mr. Thomas Bevan presiding. An interim financial statement was read by the secretary, with the result that it was resolved that prize money awarded at the forthcoming October and November shows should be paid immediately thereafter.

The conference to be held on December 4 is now arranged. There will be two sittings, one at 7 p.m. and the other at 8 p.m. At the first Mr. F. W. Laddis will read a paper entitled "Culture of Disbudded and Spray Blooms," while at the latter Mr. Percy Cragg will give a discourse on "Soil Preparation and the Use of some Chemical Foods." In conjunction with the conference there will also be a small exhibit of Chrysanthemums. The annual dinner will take place on November 23 at the Holborn Restaurant.

MOFFAT AND UPPER ANNANDALE HORTICULTURAL.

SEPTEMBER 15.—The annual exhibition of this society was held at Moffat on the above date. There were many excellent exhibits in the open classes for pot-plants, Begonias, Pelargoniums, Ferns, and Greenhouse plants being very good. JOHN WALLACE, Esq., Craigieburn (gr. Mr. J. M. KAY), was awarded the 1st prize for Begonias, whilst Mr. W. MURRAY, Ardenholm, excelled in the class for Zonal-leaved Pelargoniums. For greenhouse plants in flower, J. WALLACE, Esq., was first, and he also led in the classes for Chrysanthemums. J. SMITH, Esq., Craigielands (gr. Mr. Luke Fraser), showed the best foliage plants, whilst Mr. J. HAMILTON, Haywood, was placed first for *Fuchsia*; J. WYLLIE, Esq., Edinburgh, Dumfries (gr. Mr. J. Henderson), for Early Chrysanthemums; and J. RANKIN, Esq., Dalswinton (gr. Mr. R. A. Grigor) for Exotic Ferns. Colonel YOUNGER, Langshawsburgh (gr. Mr. Jas. Raphael), and Mr. R. PORTEOUS, Heatheryhaugh, were among the other successful exhibitors.

Collections of cut flowers were generally good, amateurs winning the 1st prizes in several classes. Colonel YOUNGER was placed first for hardy flowers. H. KESWICK, Esq., Cowhill Tower (gr. Mr. C. G. M. Murray) led in the class for Sweet Peas with a fine exhibit. Roses were well shown by Mr. J. ADAMSON, Lockerbie, who won several 1st prizes for these and other flowers. Winners in the other classes included Mr. J. SMITH, Colonel YOUNGER, Mr. J.

WALLACE, Mr. D. WHITELOW, and Mr. R. PORTEOUS.

In the fruit division Mr. J. RANKIN showed the best Grapes, and the other principal prize winners were Miss CLARK, Jardington, and Messrs. H. KESWICK, W. LOCKHART, Wyseby Lodge; J. BROWN, Wanlockhead; J. WALLACE, J. SMITH, J. WYLLIE; and R. PORTEOUS.

In the vegetable classes the leading prize-winner was Mr. J. RANKIN, but Mr. H. KESWICK gained the 1st prizes in the class for a collection and in some other classes. Other successful exhibitors of vegetables were Messrs. J. SMITH, R. PORTEOUS, J. A. RENTON, J. HARKNESS, Newfield Burn, J. EASTON, and Colonel YOUNGER.

NATIONAL ROSE.

SEPTEMBER 14.—The autumn show of the National Rose Society took place on this date at the Royal Horticultural Society's Hall, Vincent Square, Westminster. In a season of extreme drought, it was not surprising to find the quality of blooms inferior to those of average years, but

provided additional classes at the president's suggestion.

NURSERYMEN'S CLASSES.

In the premier class for 36 blooms, distinct, there were five exhibits, and all were so meritorious that the judges awarded an extra prize. The 1st prize was awarded to Mr. HUGH DICKSON, Belfast, for blooms of remarkably even quality; an exhibit which would have been a credit to the growers at the very height of the Rose season. The varieties included W. K. Smith, Mrs. Maynard Linton, Gladys Harkness, Ulrich Brunner, John Ruskin, Leslie Holland, Claudius, William Shean, Hugh Dickson, Caroline Testout, Frau Karl Druschki, J. B. Clark, Senateur Mascrand, Mrs. David M'Kee, Lyon Rose, Mary Müller, Mrs. Richard Draper, Mrs. Chas. E. Allan, Dr. O'Donel Browne, Killarney, Bertha, Mme. Wagram, Comtesse de Turenne, Mrs. Stewart Clark, Mdle. Clarice Jouranville, Countess of Gosford, Paul Neyron, Lady Alice Stanley, Mme. Joseph Combet, Chas. J. Grahame, Mme. Second-Weber, H. E. Richardson, Countess of



FIG. 106. —SOPHRO-LÆLIO-CATTELYA "JEANETTE"; COLOUR VERMILION-RED, WITH PALE YELLOW IN THE BASE OF THE LIP.

(Shown at R.H.S. meeting on September 12 by Messrs. Charlesworth & Co., and awarded a First-class Certificate.)

(See p. 211.)

they were considerably better than might have been expected. Their numbers compensated for any falling off in quality, and the exhibition was a splendid success. The Lyon Rose, which was shown so well at the summer exhibition, again attracted considerable attention, but the most prominent variety was the rich yellow Rayon d'Or. Although several seedlings were presented for award, not one was considered worthy of a Gold Medal, but a Silver-gilt Medal was awarded to Messrs. McGREDY & SON for the Hybrid Tea variety Mrs. Muir MacKean, which received a card of commendation at the summer exhibition. The colour is a rich red with a bluish shade at the base of the petals; although a fine large bloom, it lacks perfume. Another variety shown by this firm named British Queen is a good white H.T. variety with a pale primrose base. The H.T. variety Mrs. Wallace H. Rowe is a pretty pink Rose, but it does not appear to show any improvement on existing varieties of its type. In view of the exceptional season, the committee

Shaftesbury, Jonkheer J. L. Mock, Mrs. John Laing, and Ard's Pillar. 2nd, Messrs. JAMES COCKER & SONS, Aberdeen, who staged fresh blooms, including two "premier" flowers. Their best varieties were Mme. Hoste, Capt. Hayward, Mrs. S. Clark, Chas. J. Grahame, Mme. J. Combet, C. de l'udor and Alfred Colomb. 3rd, Messrs. ALEX. DICKSON, Newtownards, Co. Down, Ireland. 4th, Messrs. ADAM & CRAIGNIE, Aberdeen.

Most of the blooms exhibited in the class for 18 exhibition Tea and Noisette Roses had fresh and delicate-looking petals, and emitted a most pleasant perfume. The 1st prize collection, shown by Mr. GEORGE PRINCE, Oxford, was particularly good, the best blooms being Mme. Constance Soupert, Mrs. Edward Mawley, Marchal Niel, W. R. Smith, and Maman Cochet; the 2nd prize was won by Messrs. JEFFERIES & SON, Cirencester, who showed some exceedingly fine blooms, but they were not so even as those in the 1st prize exhibit; the varieties Mme. Jules Graveraux and Mme. Jean Dupuy were

usually first. 3rd, Mr. HARRY DREW, Longworth. The choicest Tea Rose was Molly Sharm Crawford, which was exhibited in the collection of Messrs. ADAM & CRAIGMILE, Aberdeen.

Although the class for 12 varieties, shown in vases, seven blooms of each variety, was only contested by two growers, both exhibits were worthy prizes. The premier collection was shown by Mr. HUGH DICKSON, Belfast, the six best blooms being Caroline Testout, The Lyons Rose, J. B. Clark, Ulrich Brunner, Hugh Dickson, and Miss Cynthia Forde; 2nd, Messrs. COCKER, Aberdeen, whose best blooms were Hugh Dickson, Capt. Hayward, and Miss Laing.

Mr. HUGH DICKSON was easily 1st in the class for 12 blooms of any variety shown in a vase, with fine, richly-coloured blooms of Hugh Dickson; 2nd, Messrs. W. CRISP & SONS, Colchester, with white Maman Cochet.

DECORATIVE ROSES.

In the class for 24 distinct varieties, no fewer than three nor more than seven trusses of each variety, the 1st prize was won by Mr. J. MATTOCK, Headington, Oxford. He showed clean flowers associated with healthy foliage of Mme. Jules Grolez, Duchess of Wellington, Lady Waterlow, Trier, Countess of Derby and others; 2nd, Mr. JOHN PIGO, Royston, Herts., whose vases appeared to be on the point of toppling over Leonie Lamesch and Ecarlate are both dark Roses which were shown in this collection.

Messrs. SPOONER & SONS, Woking, were decidedly first in the similar class for 12 varieties. General McArthur, Mrs. Aaron Ward and Prince de Bulgarie were especially good; 2nd, Mr. E. WOLLARD, Brighton, with good sprays of Crimson China, Orleans and Mrs. W. H. Cutbush; 3rd, Mr. CHAS. TURNER, Slough.

A class was provided for 12 varieties lightly arranged in bamboo stands. This was a disappointing class, but probably the fault lies more with the stiff and rather ungainly stands than with the exhibitors. The 1st prize was awarded to Mr. J. MATTOCK, Oxford.

The best exhibit of 12 varieties of dwarf Polyantha Roses was shown by Messrs. W. SPOONER & SONS, Arthur's Bridge, Woking. Perle d'Or, Leonie Lamesch, Eugenie Lamesch, Jessie, Mrs. W. H. Cutbush and Cecile Brunner were all very attractive. Mr. GEORGE PRINCE, Longworth, who was awarded the 2nd prize, had a splendid vase of Orleans Rose.

GROUPS OF ROSES.

Messrs. PAUL & SON, Cheshunt, obtained the Gold Medal offered for a representative group of Roses with a low and light arrangement which enabled the flowers to be easily seen. The semi-circular group was backed with healthy young bamboo, and bordered with Adiantum cuneatum. The best of their very fine Roses were Rayon d'Or, Sonateur Mascaraud, Jessie, Marquise de Sinety, Mme. Delany, and a quantity of Maman Levassieur (the best of the late-flowering Polyantha Roses), and Agate (the very dwarf Pompon Rose).

Messrs. HOBBISS, LTD., Dereham, who received the Silver-gilt Medal, filled the corner by the annexe with a group in which the yellow and pink shades of colour predominated. Heads of cluster Roses on very tall stems were raised high above the chief portion of the arrangement. Small pot plants of the bright-red G. C. Waud, Sunset (a compact flower of good yellow colour), Mrs. E. J. Holland (pink), Souvenir de Marie de Zayas (a deep pink, with curled petals), and Sunrise occupied prominent positions at the front of the group.

A Gold Medal was also offered for a group of cut Roses displayed on staging. It was awarded to Messrs. W. & J. BROWN, Peterborough. This very large exhibit was arranged in a bold and striking manner. Lyon Rose, which the firm exhibits in such good form, was placed in the centre, and on each side were arranged tall stands of Joseph Hill, General McArthur, Florence Pemberton and Mme. Constant Souper. Of the many good varieties set out on the floor of the staging we especially noted Cardinal, Earl of Warwick, Harry Kirk, and the deep, rich yellow Rayon d'Or. The 2nd prize was a Silver-gilt Medal, and this was won by Messrs. GUNN & SONS, Olton, Warwickshire. The Lyons Rose was particularly bright in this collection, and Pink Maman Cochet, Souvenir de Pierre

Notting, and Lady Ashton were also very good specimens. A Silver Medal was awarded to Messrs. JNO. JEFFERIES & SONS, Cirencester, for a smaller but very fresh collection.

Messrs. GEORGE JACKMAN & SON, Woking, Surrey, this year broke Messrs. E. M. BRADLEY's long sequence of wins in the class for a group of cut Roses. For the first time in six years, Messrs. BRADLEY, Peterborough, have to be content with the 2nd prize. There was a great similarity in the arrangement of these two groups, which were placed side by side. The winning collection contained some fine masses of the Lyon Rose, Prince de Bulgarie, Maman Cochet, Caroline Testout, Souvenir de Pierre Notting, and Mme. Ravary. The smaller vases of Roses included good examples of Zéphirine Drouhin, Lady Hillington, Duchess of Wellington, Mrs. Aaron Ward, and Hugo Roller. Outstanding varieties in the 2nd prize collection were Pauline Bersez, Harry Kirk, Mrs. Aaron Ward, W. P. Smith and the Lyon Rose. 3rd, Messrs. BEN. CANT & SONS, Colchester; 4th, Messrs. R. HARNESSE, Hitchin.

The excellence of the four exhibits in the class for 36 varieties in not fewer than three trusses of each would convey the impression that the season has been favourable to the production of quantities of fine, richly-coloured Roses. The leading exhibits were arranged on deep shelves, and the vases contained at least 20, frequently more, blooms of each variety. The 1st prize was awarded to Mr. J. MATTOCK, New Headington, Oxford, for an exceedingly meritorious display, which included a fine selection of exhibition and decorative Roses. The single variety Irish Elegance was shown in almost as good style as at the summer show. E. V. Hermans, Rhea Reid, La Tosca, Anna Olivier, Comtesse de Cayla, Mme. Jean Dupuy, Betty, and The Bride are a selection, comprising the best of this fine exhibit; Mr. GEORGE PRINCE, Oxford, was awarded the 2nd prize; 3rd, Mr. R. ADAMS, White Wells Nurseries, Bath.

In the supplementary classes open to nurserymen Mr. HUGH DICKSON, Belfast, showed nine exceedingly fine baskets of cut Roses, and was awarded the 1st prize.

ROSE HIPS.—The class for Rose Hips in nine varieties only brought forward two competitors. Messrs. PAUL & SON, Cheshunt, were awarded the 1st prize for a varied collection, comprising large, brightly-coloured hips of Rosa rugosa, the long-spined R. macrophylla, R. pimpinellifolia, which has small, Fern-like leaves and very dark, nearly round fruits. Rose altaica also bears very dark purple hips, somewhat the shape of a Spanish Onion. R. rubrifolia had scarlet hips, R. microphylla bore large, green, spiny hips, whilst the cross between that species and R. rugosa is much the same size, but in the case of the hybrid the hips have lost some spines and have taken colour from R. rugosa. R. pomifera bears large, brightly-coloured hips.

AMATEURS' CLASSES.

There were five good exhibits in the premier amateurs' class for exhibition Roses; the winning stand, shown by Mr. E. M. EVERSFIELD, was extra good. This exhibitor is especially successful with White Maman Cochet. His other varieties included Queen of Spain, W. R. Smith, Mme. Jules Graveureux, and Bessie Brown. 2nd, Mr. CONWAY JONES, Gloucester, whose best blooms were C. J. Grahame, Lady Ashton, and Mons. Paul Lede. 3rd, Rev. J. H. PEMBERTON, Havering-at-Bower, Essex.

In competition with five other exhibitors, Mr. G. SPEIGHT, Market Harborough, showed the best 12 exhibition Roses, the best variety being Horace Vernet. This received the Silver Medal offered for the best Rose, other than Hybrid Tea, Tea or Noisette variety, in the show. 2nd, Mr. W. O. TIMES, Hitchin.

Mr. M. WHITTLE, Leicester, showed splendid blooms in the class for nine blooms. M. Constance Souper (a very richly-coloured bloom) received the Silver Medal as being the best Tea or Noisette variety (in the amateurs' classes). The Lyon, Bessie Brown, and Souvenir de Pierre Notting were exceedingly fine. 2nd, Mr. W. UPTON, Leicester, who had a Dean Hole and Mme. Jules Graveureux very good. Mr. CONWAY JONES exhibited the best 12 blooms in Class 21, and Mr. E. M. EVERSFIELD received the 2nd prize.

In the class for six blooms Mr. W. UPTON,

Leicester, obtained the 1st prize with a stand which contained an almost perfect specimen of White Maman Cochet. Mr. E. M. EVERSFIELD was awarded the 1st prize for exhibition Roses shown in vases.

In the supplementary classes for amateurs, Rev. J. PEMBERTON was awarded the 1st prize for three baskets of distinct varieties of cut Roses, and he was also 1st in the class for seven varieties shown in vases, in which class Mr. H. R. DARLINGTON was placed 2nd. Mr. ROBINS, Ingatstone, was awarded the 1st prize for five varieties, and Mr. J. W. BURGESS, Tunbridge, for three varieties shown in vases.

PREMIER BLOOMS.

NURSEYMEN'S CLASSES.

H. P.: Gloire de C. Guinoisseau, shown by COCKER & SONS, Aberdeen. H. T.: Earl of Warwick, shown by Messrs. COCKER & SONS, Aberdeen. T.: Molly Shatman, Crawford, shown by Messrs. ADAM & CRAIGMILE, Aberdeen.

AMATEURS' CLASSES.

H. P.: Horace Vernet, shown by Mr. J. SPEIGHT, Market Harbo'. H. T.: Earl of Warwick, shown by Mr. E. M. EVERSFIELD, Horsham. T.: Mme. C. Souper, shown by Mr. H. WHITTLE, Leicester.

GENERAL BULB GROWERS OF HAARLEM.

The following awards were made at the August meetings of the Floral Committee of this Society:—

FIRST-CLASS CERTIFICATE.

Gladiolus gandavensis "Europa."—A white variety, spotted with red at the base of the petals.

AWARDS OF MERIT.

Gladiolus gandavensis "Niagara."—The flowers are yellow, striped with violet.

G. g. "Lieber Feuer."—A finely-shaped flower of scarlet-red colour, striped with violet.

Canna "Tiercelet."—A pure yellow variety, with flowers of good form and size.

C. "Hungaria."—This variety of Canna has bright-rose flowers, the petals being of a large size.

Dahlia "Conquest" (Cactus), dark brown; "Crystal" (Cactus), rose and white; and "The Imp" (Cactus), brownish black.

LAW NOTE.

GROUND LANDLORD'S RIGHTS.

To many of those who are either owners or tenants of other than frehold houses and have planted creepers and climbers to clothe their dwellings and boundary walls with beautiful—and, what is more, protective—foliage it may be news that the ground landlord, with a view to the maintenance of the buildings on his land, has, or claims to have, the right to demand at short notice that not only the house itself, but the garden walls shall be "pointed," pains and penalties being incurred if such be not done "without delay" and to his satisfaction. The case—an actual one—concerns a number of semi-detached houses in one of our prettiest western suburbs which are let on a 99 years' lease, having still about 70 years to run. These houses are substantially built, the rental value being about £50, and are mostly tenanted by men who have purchased them for their own occupation. Both the front and back gardens—these latter about 80 feet by 30 feet—are well kept, and in one case filled with very choice collections of valuable plants. Most of the houses are beautifully clad from bottom to top with Ampelopsis, Ivy, and other plants. The road itself is an avenue of well-grown trees, and this avenue, with the verdured-clad buildings on either side, has a very pretty appearance. The buildings, under such circumstances, are naturally well cared for by the occupants, and are in such good repair that a very keen eye indeed is required to detect the need for "pointing" the brickwork which is now insisted upon by the ground landlord, in order to protect his eventual interest as owner 70 years hence, when the lease expires, and the buildings, for which he has not paid a penny piece at any time, and which have formed a substantial guarantee for his ground rents, will fall into his hands free, gratis and for nothing. It is in view of this

distant eventuality that the present so-called owners are called upon to destroy the amenities of their holding, for it is obvious that a body of bricklayers imported into a garden for the purpose of pointing its boundary walls, to do which they must perforce pull down all the creepers covering such walls and those of the house itself would inevitably inflict such damage as would take years to remedy. This point is quite apart from the expense which the work would involve: which work is uncalled for. The demand, too, is made regardless of season; it must be attended to "without delay," and the presumption is that, should such demand be ignored, the ground landlord would take upon himself to get the work done to his satisfaction, claiming the cost from the leaseholder.

The question here arises whether, in the case of rare and valuable plants, the owner could not hold the ground landlord responsible for any damages to such plants done by his workpeople, after duly warning him of the risk he ran. He could place the house and garden walls at his disposal for the purpose indicated, while pointing out to him that he should hold him responsible for such damages, and requiring him to leave everything intact as he found it, or make any damage good.

In any case, even if the ground landlord possesses such powers as appear so greatly to the leaseholder's detriment, it is bad policy to enforce them under the circumstances described. Usually, a man buys a house so as to be free from the risk of being turned out of it, and thus being deprived of garden and other amenities which he may have created by years of labour, but which would appear to be open at any time to destruction or to destruction on an extensive scale at the bidding of another, from which he naturally expected he would be exempt so long as the ground rent was punctually paid. It seems desirable, before purchasing a house on other than a freehold basis, to narrowly scrutinise the ground-rent contract, and insist upon the insertion of some protective clause before closing the bargain. D.

A LEGAL OPINION.

An interesting question is raised by Mr. "D's" article under the above heading, and, as usual, there is a good deal to be said on either side of the case. The two main points involved are:—

1. Is the landlord acting reasonably in calling for the houses to be repaired, and
2. Can the landlord be restrained from having the work done if it involves damage to the Ivy, &c., growing on the house, or, at all events, can he be required to make good any damage so caused.

Dealing with the first question, it is obviously necessary to consider what was the original bargain between the two parties who entered into it, i.e., the landlord who let his land for building purposes and the tenant who agreed to erect the house in return for the use of the land for 99 years at a fixed rent. In most cases of this kind the tenant would be a builder, who would enter into the arrangement for the purposes of profit. The whole matter is, in fact, a question of business arrangement and calculation on either side.

The builder usually prefers not to buy the land outright, as the purchase money would absorb capital which could be more usefully employed in his business. He therefore arranges to hire the land for 99 years at a fixed rent of a few pounds per annum (in practice the amount usually runs from £3 to £10 a year, according to the area, value of the neighbourhood for residential purposes, and the size of the house to be erected). During the next 99 years, therefore, the landlord and his successors must be content with the fixed rent, irrespective of whether his land doubles or trebles in value meanwhile. On the other hand, at the end of the 99 years the ownership of the house passes from the tenant to the landlord.

At first sight this might appear to be rather hard on the tenant, but in practice the matter can be adjusted by quite a simple arrangement. Money invested at compound interest doubles itself every few years, so that (on the well-known principle of "the nails in the horseshoe") a very small sum thus invested to-day would pro-

duce a very large amount in 99 years' time. Accordingly, the tenant can take out a form of insurance policy (known as a redemption or sinking-fund policy), under which, at the end of 99 years, any insurance company will pay to him a sum in cash equivalent to the value of the house which is passing from him to the landlord. To obtain this amount the tenant can either pay a small sum down now, or, if he prefers it, he can pay a very small premium each year. This premium the tenant can regard as extra rent for the purposes of his business calculations when considering whether the venture will bring him a satisfactory profit. In many instances the annual value of the property will have risen in a few years by more than the amount of the insurance premium, and this increased value will be enjoyed by the tenant, as the landlord is still tied down to the fixed rent originally agreed upon.

As the landlord thus looks to the value of the house to recoup him for his loss of extra rent during the 99 years, he naturally stipulates that the structure of the house should be kept in reasonably good repair during this period, as obviously it would be contrary to the bargain between the parties if the tenant should quit the property leaving the house in such a condition as to be suitable only for use as a dilapidated cowshed instead of as a residence to be let for occupation. Accordingly, in the building lease which the tenant takes up, he agrees to keep the house in good repair, and empowers the landlord to call for such necessary repairs to be done from time to time. If, therefore, the builder enters into a bargain to this effect it seems scarcely reasonable for him to grumble afterwards when he is required to abide by his share of the arrangement. If, however, the landlord makes demands beyond the terms of the lease, then the tenant can safely refuse to comply with his demands. In practice, the matter is usually settled amicably between two surveyors, one representing the landlord and the other acting for the tenant.

In some building leases it is arranged that the landlord shall have the right to call for the premises to be repaired, except during the last seven years of the term, but in that case the landlord's consent usually has to be obtained before the lease can be sold or transferred. Otherwise, the landlord's successors would generally find at the end of the 99 years that the lease had been transferred to a "man of straw," who, having nothing to lose, would calmly ignore the promises of his predecessors to keep the house from falling into ruin.

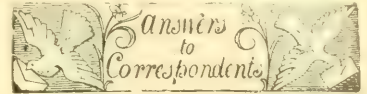
So far the position is simple enough, but the second point raised by Mr. "D" involves a more difficult question of fair play. It is impossible not to sympathise with the lover of horticulture called upon to see his cherished decorations of Ivy, &c., completely ruined by the ruthless hand of the bricklayer and renovator. On closer examination, however, the matter appears to resolve itself into a simple question of fact. The house is either in such a bad state of repair as to require the re-pointing of the bricks or it is not. In the former case it would presumably be impossible to carry out the necessary repairs without damaging the Ivy growing on it. There would still, however, be no necessity for the garden to suffer damage in any other respect if due care is used, and the tenant has two courses open to him. He can either make a special contract with a builder to carry out the work without damaging the garden or he can leave the landlord to do the work at his (the tenant's) expense, and can counterclaim for the value of any damage unnecessarily caused to the garden, giving the landlord due notice beforehand of the intention to hold him responsible.

If, on the other hand, the re-pointing of the bricks is, as Mr. "D" suggests, quite unnecessary, then, unless the lease is drawn in an unusual and peculiar form, the tenant can refuse to comply with the notice and may calmly await events.

Whether Ivy is a protection or a detriment to the structure of a house is a question on which experts appear to differ. Some surveyors hold the opinion that Ivy causes the structure to rot, as, although offering some protection against storms, yet, on the other hand, they contend that it is apt to retain moisture, which would otherwise run off quickly. This aspect of the matter, however, need not arise when considering the legal rights of the parties, and the experts may be left to argue it out between themselves.

Obituary.

GEORGE FLETCHER.—We regret to record the death of Mr. George Fletcher, senior partner of the firm of Messrs. Fletcher Bros., Ottershaw Nurseries, Chertsey, Surrey, on the 14th inst. in his 74th year. The funeral took place on the 19th inst. at Ottershaw Church.



•• The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

APPLE SUCKERS: W. F. We are not surprised that fresh suckers are more numerous on the stem each year after cutting off those of the previous season. This practice favours the production of adventitious buds at the base of the cut shoots, which give rise to fresh suckers the following season. The development of suckers in such numbers shows that the trees need root-pruning. Take out a trench some little distance from the trunk of each tree, and sever a number of the stouter roots that are growing in a downward direction. This will check the energies of the trees, and prevent the formation of suckers on the stems.

APPLES: Rev. F. T. S. The Apples have fallen owing to the extreme heat of summer; the decaying is subsequent, but no fungous disease is present.

BEGONIA RUST: F. W. C. and L. C. The rust is caused by the Begonia mite. It is advisable to dip the plants at intervals of three days in a solution of tobacco water. If the plants are too large to dip, they should be sprayed with the same solution.

BURNING BUSH: J. W. Your friend is referring to Dictamnus Fraxinella. The ripe fruits of this plant emit a volatile oil, which vaporises on hot, dry days, and if a match is lighted over the bush, the vapour ignites momentarily. We observed this interesting phenomenon in Mr. Latham's nursery at Rowhams, near Southampton, on a hot day in August, 1908. See *Gardeners' Chronicle*, October 10, 1908, p. 259.

CARNATION RUST: J. C. Chingford. This is a fungous disease. The first symptom is the appearance on the leaves of pale spots, which, developing later on into blister-like protuberances, finally burst at the apex, and allow the chocolate-coloured spores to disperse. The best way to combat an attack is rigorously to pinch off and destroy every leaf on which the first sign of disease is perceptible. This may have the result at first of making the plant appear disfigured; but, if persisted in, and the leaves thus removed are destroyed by burning—as well as all those plants which are so debilitated by the process as to be incapable of making good specimens—the disease will eventually be overcome. You will still, however, have to be careful that the pest is not re-introduced by fresh stock plants procured from various sources; and you will find it necessary to keep your plants in such a condition that they will be best able to resist an attack. They can best be preserved in a healthy condition by being grown as sturdily as possible, and having the leaves firm in texture, with tough, fungus-resisting skins. It will be found very much easier to keep the plants clean if they are kept always indoors. During the winter months the roots should be kept rather dry, and the foliage perfectly dry. Spraying with potassium sulphide is recommended as a preventive of this disease, but it must not be relied upon, and the removal of affected leaves neglected.

CATERPILLARS ON CABBAGES: W. R. B. The most satisfactory method of destroying caterpillars on Cabbages is by handpicking. It is not practical to employ any of the very poisonous insecticides, but you might try the effects of quassia extract, rinsing the Cabbages well before they are eaten. We do not

undertake to reply by post to correspondents' queries.

CULINARY DISEASED: *W. P. and G. L. S.* The Celery plants are affected with a fungus disease, *Cercospora Apii*. Burn the diseased leaves, and do not plant Celery on the same ground for some years.

CULTURE OF CRASSULA: *E. W. N.* You should insert cuttings as early in the year as possible, and pot them up singly or in threes into 2-inch pots as soon as they have made roots. When they begin to grow pinch out the leads and place the plants in an unheated frame or well-ventilated greenhouse, where they will be exposed to full sunshine. Pot them on as required and continue to pinch the points out during the whole of the first season of growth, the aim being to get a good foundation of growth in the first season for flowering in the following year. The majority of the plants should be in 5-inch and, if strong, in 6-inch pots by the end of September, these sizes being sufficiently large for flowering plants of from 18 to 20 months old. During the winter months keep them in a house or frame well up to the glass, and merely keep the atmosphere above the freezing point. On no account should they be coddled with heat at this stage, otherwise they will fail to flower, and they may even make sappy new growths. Keep them partially on the dry side during the whole of the winter months, but not dry enough to cause the leaves to fall or even shrivel. The endeavour should be to induce the plants to rest completely, as this will insure a good crop of flowers in the following spring and early summer. About the end of March, growth recommences, and as soon as the flower-heads show, the plants should be fed liberally with manure water until the flowers begin to open, but not longer. The three best *Crassulas* for your purpose are the South African *C. jasmynoides*, with white flowers; *C. coccinea*, with bright scarlet flowers, and the hybrid between these two species, known as *C. Mrs. Pfitzer*, with pink flowers. All three plants have fragrant flowers.

DESTROYING LARGE ROOTS OF PINUS: *J. F. X.* The simplest plan is to destroy the roots with dynamite. If the wood is exceptionally dry, you might try burning them when saturated with saltpetre. To do this successfully you will need to bore holes in the softest parts of the wood, and fill them with a concentrated solution of saltpetre, replenishing the liquid as fast as it soaks into the tissue. When the wood is thoroughly saturated set it on fire.

HYMENOCALLIS: *H. D. L.* Most of the species of *Hymenocallis* (known in gardens as *Pancratium*) require a warm house during their period of growth and until the flowering season is past; but after that stage they should be kept in a cooler but not cold temperature, and, whilst the supply of water at the roots should be decreased, they must not be what is called "dried off." Fibrous, yellow loam, with a sprinkling of peat and a little dried cow manure added, is the best compost for these and for similar strong-growing, bulbous plants. When once they are in pots of convenient size, they are best left undisturbed for several years, but during the growing season, and whilst the flower-spikes are in course of development, waterings twice a week with weak liquid manure is beneficial, as the manure water supplies sufficient nourishment to compensate for the small amount of soil in which they are growing. *Hymenocallis* are liable to the attack of thrips, and the leaves should be sponged occasionally with a weak insecticide. During the flowering period, the plants may be removed to a drier house, in order to prolong the bloom, or they may be used for decorative purposes in the dwelling house. The plants are propagated from seeds and off-sets. Seeds should be sown on the surface of the soil in a seed-pot and barely covered with fine soil. Seedlings should be grown on without observing a resting season until they flower. Off-sets from the bulbs should be potted on for the purpose of increasing the stock. Their removal is necessary to the vigour of the old flowering bulbs in order that these latter may acquire all the strength possible.

LOGANBERRY DISEASED: *G. H. O., Cumberland.* Botrytis is the cause of the injury to your Loganberries; this has probably passed on to the fruits from decaying vegetable matter lying about.

NAMES OF FRUITS: *C. W. T.* 1, Ribston Pippin; 2, Warner's King; 3, not recognised; 4, Duke of Devonshire; 5, Bachelor's Glory; 6, decayed, resembles Peasgood's Nonesuch.—*O. H.* Mère de Ménage.—*F. L.* Small's Admirable.—*Rev. F. T. S.* Bramley's Seedling.—*W. D. S.* Trumpington.—*North.* 1, Newton Wonder; 2, Gascoyne's Scarlet Seedling; 3, Bramley's Seedling; 9, Baumann's Red Reinette; 13, Prince Albert.

NAMES OF PLANTS: *E. C.* Codiaums: 1, Lady Zetland; 2, probably Irregular; 3, probably triumphans; 4, Noblesse. Nos. 2 and 3 are character.—*J. M.* Sedum maximum.—*William Early.* Ricinus communis "Castor Oil" plant.—*J. A. Seales* Emilia flammea.—*C. T. & Co.* Probably Plantago lanceolata; probably Senecio Jacobaeus; specimen very scrappy.—*E. C.* Hibiscus Trionum. *E. T.* 1, Helenium autumnale cupressus; 2, Anthemis tinctoria; 3, Phygelis capensis; 4, Lychnis coronaria; 5, Pulicaria dysenterica.—*J. Edwards.* Acer dasyarpum, the Silver Maple of Eastern North America.—*Enquirer.* Chlorophytum elatum variegatum, Nandina domestica.—*J. C. G.* Lycium barbarum (chinese); it is known as the Tea plant from having been recommended as a substitute for Tea.—*T. E., Harpenden.* Phytolacca decandra.—*J. F. X.* 1, Olearea Haastii; 2, Permettya mucronata; 3, Thymus montanus; 4, Lobelia syphilitica; 5, next week; 6, Skimmia japonica; 7, Cornus alba var. Spathii; 8, C. alba variety; 9, Artemisia Abrotanum; 10, A. vulgaris; 11, not found; 12, Antholyza paniculata.—*H. H.* 1, Adiantum tenerum; 2, A. formosum; 3, Lastrea varia; 4, Gymnogramme calomelanos; 5, Onychium japonicum.—*R. T. P.* 1, Celia triptera; 2, Bulbophyllum auricomum; 3, Odontoglossum gloriosum; 4, Brassia maculata.

ONIONS AT EXHIBITIONS: *Fair Play.* Onions staged in competition at exhibitions should not have the skins removed, as the bulbs are required to be shown whole.

ORANGE TREES: *J. T.* Oranges will succeed in a cool, airy greenhouse in winter, but they are scarcely likely to do well in an ordinary dwelling room. In any case, your seedlings will not fruit successfully unless they are grafted. The best method of grafting is by side grafting. Cut down the trees to the desired height, and select a scion about half the size of the stock. The scion should be securely tied to the stock with worsted, or, if the tree forming the stock is extra large, some untwisted soft string may be used. On no account should bast or raffia be employed. Grafting wax sufficient to cover the top of the stock and scion should be applied to the graft in order to keep out water. Keep the grafted trees in a close place, preferably a pit, and shade them whenever there is sunshine. The temperature of the pit may range from 40° to 50°, but must not be allowed to exceed 50°. After a good callus has formed the trees may be gradually brought to the light and the shading discontinued. The grafts need not be untied until the autumn, unless the tying material is found to be cutting into the bark of the stock.

POTATO TUBERS: *Cestrian.* There is no disease present in your Potato plant. The young out-growths have been injured by the abnormally hot weather.

R.H.S. EXAMINATION: *Ernest.* The examination of the Royal Horticultural Society is held each year on some date in April. The syllabus is divided into two parts—practical and theoretical. A gardener should be able to give satisfactory answers to any of the questions dealing with practical gardening, as they are set on every-day gardening work and are usually of an elementary nature. The other part of the syllabus requires an insight into the sciences allied to horticulture, including botany, chemistry, and physics. Your best plan would be to join evening classes where

these subjects are taught, or, failing that, you should obtain suitable text books and study them at every opportunity. Advertisements sometimes appear in our advertising columns from persons who conduct classes by post for intending candidates.

ROSE: *R. E. G.* Your specimen appears to be *Rosa lucida*, but it was dry and withered when received.

SALE OF SURPLUS GARDEN PRODUCE: *V.* Judging from your letter, there should be some surplus produce of fruit and vegetables available for marketing after supplying your own requirements. The produce should be presented at the respective shops in a clean, fresh, and sound condition. The fruits should be graded, placing the large, even-sized fruits free from blemish in baskets by themselves, and so on with the second and third-rate quality fruits. The amount realised by the sale of the surplus produce should contribute largely to the upkeep of the gardens. Vegetables which are most in demand in shops should be considered when sowing and planting the crops, and a plentiful and regular succession of these should be aimed at in and out of season. Always endeavour to have a good supply of such vegetables as Peas, French Beans, Scarlet Runners, Cauliflowers, Lettuces and Spinach ready for marketing when there ceases to be a glut of these vegetables in the market during the months of July, August and September. Curled Parsley is always profitable to grow, as also is Mint during the early spring months. The growing and marketing of surplus produce will necessarily increase the work of the gardener and necessitate the exercise of extra forethought on his part beyond that ordinarily incurred in the performance of his regular duties, and this should be considered. It is impossible for us to estimate what sum you should realise by the sale of the surplus produce, as much will depend upon local and other circumstances, of which we have no knowledge.

SHOT HOLE FUNGUS: *J. L.* The most certain remedy known for this fungus is "self boiled lime-sulphur mixture"; it will be well to collect all the fallen leaves and burn them.

SOIL FOR EXAMINATION: *H. T. S.* The soil is apparently a poor sample of very light texture. Organic manures, and especially cow and pig dung, would be valuable, also any vegetable refuse and leaf mould to supply humus. If you do as you suggest, and apply a heavy dressing of manure, *Chrysanthemums* should grow fairly well in it.

TENANT'S FIXTURE: *Subscriber.* Your best plan will be to try and come to terms with the tenant. It might be advantageous to buy the factory and allow him to continue to rent it as long as the arrangement proves satisfactory. If you could dispose of your surplus fruit to him for jam making, it would be an advantage, and then, when he retired, you might be in a position to carry on the factory. If you contemplate a local trade, it might prove a disadvantage to dispossess the tenant of his business, as it might prejudice you with those whom you wish to serve.

VINE LEAVES DISEASED: *Prof. Treuberg, Russia.* The leaves are affected with the "Grape Mildew." A certain remedy is to spray the vine with Bordeaux mixture made at half the normal strength, commencing the spraying early in the season before the mildew appears on the leaves.

WEED ON A LAWN: *C. J.* From your description, we suspect the plant is *Frunella vulgaris* (Self Heal). Prepare some fine soil, mix with it some nitrogenous manure, such as nitrate of soda or sulphate of ammonia, and apply it as a top-dressing. This will cause the grass to grow freely, and in time crowd out the weeds. Repeat the top-dressing in the spring.

Communications Received.—*B. H.* Cornwall (thanks for contribution to the R.G.O.F. Box)—Rutland Cottage W. and S. J. F. N. E. A. H. F. E. G. K. P.—*E. A.* W. D. Ockbrook—*A. W. D.* New Head—*L. L.* F. E. Lingsfield—*H. C.* Nettlescombe—*W. H. H.*—*G. L.* S. W. P. Chorley—*G. W. D.*—*W. K.*—*H. K.*—*W. J.*—*H. W.*—*W. A.*—*H. S.*—*H. W.*—*W. H. J.*—*R. F. A. O.*—*R. W. H.*—*H. W. G.*—*H. P.*—*F. J. A.*—*N. F. B.*—*A. W.*—*Ware.*—*H. T. S.*—*G. H. O.*—*R. J. W.*—*E. A. B.*—*W. A. C. P.*—*H. W. S.*—*H. R.*—*N. J.*—*P. R.*—*C. R.*—*Young Gardener.*—*H. T. G. F.*—*W. G. S.*—*E. A. B.*

Gardeners' Chronicle

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MARKET-GARDENING IN SOUTH-EAST SCOTLAND.

THE district extending eastwards from Edinburgh for about 30 miles on the fringe of the south shore of the Firth of Forth includes some of the richest and most highly-rented agricultural land in the world. But beside farm produce, vegetables are cultivated extensively for market, and some of the closest-cropped gardens in Great Britain are to be found there. The high quality of the vegetables grown on this land is well known; a striking feature, too, is the *clean* cultivation of the ground, for in many places, one may search in vain for a weed of any description. Many of these market gardens have belonged to the same family for generations, the present occupiers being nearly all bred from the race of gardeners reared on the soil and trained to the business in a hard school. They are energetic workers, and by dint of industry and skill win the last penny-worth that the soil can yield. The extent of the market gardens varies from 15 to 25 acres. The produce is sold mainly in the Edinburgh and Glasgow markets. Many of the older-established gardeners grow their own excellent strains of vegetables, the result of careful selection over many years. The strains of early Cabbage, Leeks, Beetroot, Drum-head Savoy, Brussels Sprouts, and, in some cases, early Milan Turnips, are second to none in commerce. Till recently the seeds of these various stocks were harvested in the gardens, but it has become a common practice to send selected plants

The procedure adopted in one garden of 22 acres, which is a model in every respect, may be taken as a general example of the manner in which these places are worked. The rent in the district varies from £6 to £10 per acre; in this particular instance it is £9. Two horses are kept, with a man to attend to each, while there are four other men and two women employed regularly. During summer an additional 15 or 16 women are engaged, the work including weeding, raising early Potatoes and bunching vegetables. Suitable labour is readily obtainable in the district, and is drawn largely from the fishing and mining classes in the immediate locality. Women are paid at the rate of from 1s. 6d. to 2s. per day, while the men receive as a rule 21s. per week with house; the hours worked are from 6 a.m. to 6 p.m., with the usual breaks for meal-time. Twice weekly, at least, and during summer, oftener, the employer and his van-men leave home about 2.30 a.m. for Edinburgh with produce, which is sold in the Waverley Market. Great attention is paid to manuring the ground, which is dressed heavily with dung. Artificial manures, with the green

ing. Artificial manures, with the exception of a little nitrate of soda occasionally for forcing purposes, are employed but rarely. Assuming that Potatoes are planted, generally about the third week in March, the land receives for this crop farmyard manure at the rate of 45 tons per acre. Only early sorts are grown, as maincrop varieties do not pay. The Potatoes are raised in the first week of August, and the ground receives another dressing of 55 to 60 tons per acre of the same manure. Early in September it is planted with Spring Cabbages, this crop being cut and marketed by the middle of the following June, when the ground is again available. The only manure then applied is a dressing of soot at the rate of 30 cwt. per acre. Leeks are planted at the end of June or early in July. There is no fixed rotation of cropping, which varies with the district and the methods employed by the cultivators. After Leeks, Celery is sometimes planted, the ground receiving a heavy dressing of manure for this vegetable; in some cases as much as 160 tons per acre. It is the general practice to plant early Potatoes or Lettuces on the ridges thrown up from the Celery trenches, these being harvested before the Celery requires earthing up. After Celery, Beet is found to be the best crop, and for it no manure is applied. Culinary Peas are grown largely, planted in ground which was manured for a previous crop. In one garden, early Turnips have been cultivated on the same piece of ground for 16 years in succession, and are usually the first in the local market. This is done on a southern slope, the previous crop always being Leeks, the land receiving 50 tons of manure per acre for the Turnips. Every year this crop is marketed in the first week of June. Peas

coming in usually about the third week of May. White Lisbon Onions are largely cultivated, this crop being interplanted in spring with either Brussels Sprouts or Cabbages. As the land is usually too rich for raising plants from seed, a portion of ground is specially reserved for the purpose, frames being utilised for Lettuce and Celery. Most of the gardens include long stretches of frames, and often a greenhouse, which, when not occupied with young plants, is used for growing a crop of Tomatos or for forcing Mint. The Leeks are generally a selection from the old Musselburgh, and there are many fine stocks in the district. The seeds are ripened along the foot of walls or hedges, but some growers, as already stated, send plants to the south for seed purposes. Brussels Sprouts are developed from the Dalkeith stock, and many growers have some very good selections that are not to be excelled anywhere, and this also applies to Cabbages. These stocks are zealously guarded by the owners and carefully retained by them, having been in the families for many years. Home-saved Beetroot is preferred, Northumberland Red, Edinburgh Market, and Cheltenham Greenleaf being the favourite varieties. In Potatos, Mid-Lothian Early is now the general variety cultivated, these keen growers having long ago recognised that it is the best for their purpose, giving a good crop always and tubers of fine quality. Epicure is still grown, but not so largely as it was a few years ago. Dalkeith Early proved almost useless. The old British Queen is still grown for a second early crop. The Drumhead Savoys are all home-saved, and are carefully grown and selected year after year. Many are grown to an enormous size, weight being a consideration in the market. Rhubarb is largely forced in houses, and these, when not occupied by Rhubarb, are used for a crop of Mushrooms. The Rhubarb is carefully planted out after being forced, the varieties being usually Early Albert, Victoria, and Tobolsk. Daws's Champion is becoming more common, several growers already having a good stock of this variety. Heavy crops are the rule in these gardens. One grower secured over 50 tons of Leeks per acre, and 16 to 18 tons of early Potatos is a common crop. Manure is a heavy item in the expenditure. It varies from 2s. 6d. to 4s. 6d. per ton, according to the district. The market growers stack it and keep it in the best possible condition, so that it loses little or none of its fertilising properties.

Expenditure may be reckoned at from £15 to £30 per acre for labour and manure, the returns varying from £60 to £180 per acre. The land is given occasionally a dressing of lime, so that it is always in the best possible condition for plants. Competition from Continental-grown vegetables is now severe, but the home-grown produce is of much superior quality. The marketing arrangements are by no means satisfactory, and it is noteworthy that steps are being taken to introduce co-operative selling. *George M. Taylor, Mid-Lothian.*

NEW OR NOTEWORTHY PLANTS.

FICUS PANDURATA = LYRATA.

At the Ghent Quinquennial Exhibition held in April, 1903, Messrs. F. Sander & Sons, St. Albans, showed a group of new plants, which included a *Ficus* with large, handsome foliage and named *F. pandurata* (see figs. 107 and

108), and persistent. The base is distinctly cordate, with rounded auricles, and the petiole is about an inch long. Another character which distinguishes this species is the large, dark brown, persistent, bract-like, boat-shaped stipules, which are about 2 inches long, and set so as to hide the stem. The plant is easily propagated by means of stem cuttings, and it enjoys plenty of heat and moisture at all times. Among large-leaved *Ficuses*, this is certainly one of the best yet introduced.

ful comparison proved its identity with Messrs. Sander's plant. This species was named and described by Dr. Warburg, of Berlin, in Engler's *Botanisches Jahrbuch*, vol. 20 (1894), where we are told that the species grows to a height of 40 feet, and it was found by Preuss near Elephant Lake, Cameroons. It is probable, therefore, that the plant was introduced into cultivation by the Germans, but on this point perhaps Messrs. Sander can enlighten us. The change of name in this case is not fortunate, as the leaves of this *Ficus* are certainly not lyre-shaped, but fiddle-shaped. Still, this makes no difference, and we must conform with the rule which gives preference to the oldest name, unless that name happens to be wrong. A good popular name for the plant would be that of the "fiddle fig." W. W.



FIG. 107.—*FICUS LYRATA* (*PANDURATA*).

108). This plant has since become popular, particularly in the United States, on account of its decorative qualities and its good nature under cultivation. It usually forms a simple, sturdy, upright stem, which is clothed from the base to the apex with foliage, even when the stem is 12 feet high. The name *pandurata*—fiddle-like—gives a very good idea of the shape of the leaves (see fig. 108), which are broadest in the upper half, their length varying from 8 to 18 inches, and their width about one-third less. They are leathery in texture, dark green, quite gla-

A few days ago, when looking through the fine series of figures of *Ficuses* in Vol. 1 of the *Annals of the Botanic Gardens, Calcutta*, I came across a figure of one called *F. pandurata*, which is quite different from the plant thus named by Messrs. Sander. It was described by Dr. Hance as a low, diffuse bush, with membranous panduriform leaves, and is a native of South China. The habitat of Messrs. Sander's plant was not known. Search through the specimens in the Kew Herbarium, however, resulted in the discovery of a type specimen of *F. lyrata*, and care-

THE ROSARY.

CULTURAL HINTS FOR OCTOBER.

OCTOBER is a very busy month in the Rose garden. Wherever the ground is in a suitable condition, and the growth of the plants fairly ripe, planting may be commenced by the end of the month. Care should be taken to ascertain the habit of growth of varieties before planting them, as it is not pleasing to find a vigorous grower outcrowding its neighbour or a dwarf grower placed at the back of a border where it is hidden by other plants. A good effect may be gained by planting beds or groups of two varieties only, arranging the dwarf-growing sort around the outside. Colours should also be considered in planting. Do not fail to plant firmly, treading the soil about the roots as it is added. The roots should be spread out and, should the soil be very dry, a copious watering afforded after the first layer of soil is added. Dwarf Roses need planting about 3 inches above the junction of the scion and stock: stock standards should never be planted deeply. They will need staking at once to secure them from damage by autumn winds. If the plants have young shoots at the points of their growths, it is well to prune them away, otherwise they will tax the energies of the roots, which will have a difficulty in obtaining sufficient moisture after they are transplanted. Should the plants arrive from the nursery in a dry and partially shrivelled condition, immerse them in water for a day previous to planting; if the weather is frosty, bury them in soil without unpacking them, until the weather is favourable. October is the best month for procuring Briars for use as stocks for standards. It is essential that the roots are not harmed by frost, and if the planting is done whilst the ground is warm, new roots will have a much better chance of forming.

October is by far the best month in which to propagate from cuttings stocks of the Manetti, De la Grifferae, and those known as the cutting Briar stocks, for grafting dwarf plants. Seedling Briars may be purchased cheaply, and it does not pay the amateur to raise them. The cuttings should be made in much the same way as ordinary Rose cuttings, but they should be longer, and it is imperative to remove carefully all but the two or three top buds, for if their removal is neglected there will be serious trouble with suckers later on. I much prefer cuttings obtained from seedling Briars to those taken from shoulders of standard stocks. Those from the seedling stocks are smaller, and the removal of the surplus buds takes longer, but they root better, and furnish stocks with less pith than those from the standards. While upon the subject of stocks, I may mention that only the hedge Briars intended for standards need planting now. Standard stocks may be planted deeper the first year than is advisable when they are transplanted. Let the soil about the roots be made quite firm, and plant at 9 inches apart in the row, allowing $3\frac{1}{2}$ feet apart between the rows. There will be a difficulty in working them during the summer if they are crowded. Not

enough attention is paid to the trimming of standard Briars. Cut off all clumsy and nobby roots, as these will only decay, or, if they live, produce a large number of suckers. The roots of the Briar may be trimmed much shorter than is done by many, and Briars may be transplanted better if the roots have been well pruned.

ROSES UNDER GLASS.

Pot Roses should be housed, or protected by other means, from rains and frost. They may be

very ripe, do not commence forcing the plants until next month. If the plants are fairly well ripened, continue to lift and pot Roses, keeping them as cool as possible, and do not allow the wood to shrivel in the least. A batch of these plants should be very useful for late forcing, and will blossom just in advance of those outside.

Stocks intended for grafting next month should be potted up at once, plunging them deep enough to cover that portion of the stem on which the graft will be inserted. I will deal with the

THE KAISERIN AUGUSTA VICTORIA GROUP.

KAISERIN AUGUSTA VICTORIA, brought out by Lambert in 1891, is well known as a beautiful lemon-white Rose, and holds a good place in the list of exhibition Roses. Where it does well it is a useful Rose, generally well shaped, and of fair substance, so that it may be relied on to stand well in the exhibition box or specimen vase. It does not, however, succeed in all gardens, nor is it very free in flowering. Possibly it is better in the south than in the colder north, for I think it is not always a success on the cold clays of the Midlands, and in my own garden, some 15 miles north of London, I have seldom kept it long. It has, it is true, produced a climbing sport, which is vigorous enough, but with me it has proved a rather unsatisfactory Rose on account of its persistent refusal to flower anywhere except at the very top.

We have now several Roses of a rather similar type, which are worth consideration. In 1901, Messrs. A. Dickson & Sons sent out the Duchess of Portland, a pale, lemon-coloured Rose, with a somewhat deeper colour in the centre, sometimes with a tinge of pink. This is often a beautiful Rose, and the colouring very delicate, but the plant is only of moderate growth, which means that it is not a very good doer, and the texture of the petals is not very firm, while the Rose does not stand so well when cut as does Kaiserin Augusta Victoria. The Duchess of Portland obtained a Gold Medal in its day, but is already excluded from the N.R.S. catalogue.

The next year, 1902, Schneider obtained Perle von Godesberg as a sport from Kaiserin Augusta Victoria. This Rose is of a slightly deeper colour than its parent, and has proved with me to be a more satisfactory Rose in the garden. It is described as moderately vigorous, but does not seem to be a very long-lived plant, and requires renewal from time to time. Its flowers, however, are produced more freely than those of its parent, and they are firm and of good substance, lasting fairly well when cut in the house or staged in the exhibition box.

In 1904, Messrs. A. Dickson & Sons produced Mrs. David McKee. This is proving a better garden plant than any of the Roses named. The foliage is good, and the plant fairly hardy and floriferous. The flowers are a creamy-white, often slightly deeper coloured in the centre, and the petals are large, shapely, and fairly full. It seemed likely to make a good exhibition Rose, but in this respect I have found it somewhat disappointing, as it is apt to collapse unexpectedly. Perhaps it is one of those Roses which do not like the atmosphere of a hot tent. I am inclined to think that it is on its merits as a garden Rose that Mrs. David McKee will have to rely to secure popular favour.

This year (1911), Messrs. A. Dickson & Sons have given us another Rose of a similar type in Mabel Drew. It is too early to speak of its value in the garden, but it may be described as a fuller Mrs. David McKee, and, so far as one may judge of it from the appearance of maiden plants, Mabel Drew seems to be a satisfactory Rose. The test is not a strong one, and we shall have to wait for a few years until we have grown and tested it in our own gardens before its merits or demerits will appear; but the newcomer seems promising, and belongs to a beautiful group, of which many rosarians would like to find a member alike useful in the garden and for cutting. As such, it is well worth a trial; but we shall have many questions to ask of it before we admit it to the position of a popular favourite. Will it open well in a dull season? Will it ball in a wet one? And will it, in all seasons, flower freely and retain its form whether grown as an exhibition Rose or for garden decoration? Two or three more summers should answer these questions, and we will hope that the verdict may be favourable, for the Rose comes of a good type. *White Rose.*

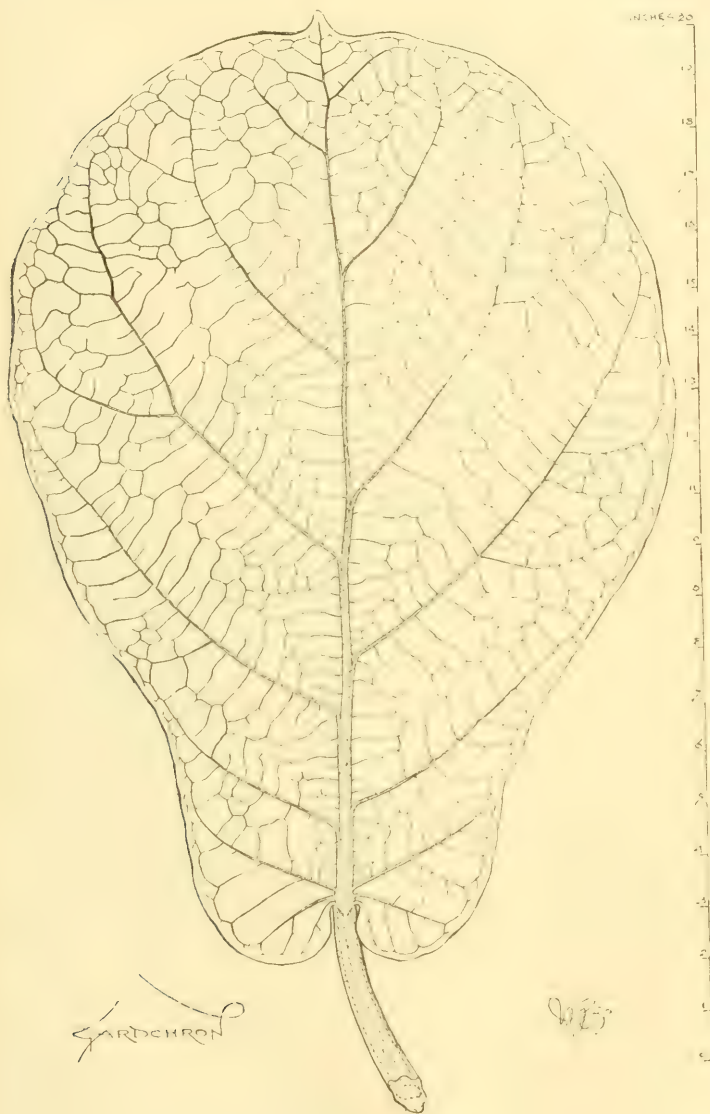


FIG. 108.—LEAF OF *FICUS LYRATA*.

allowed full exposure when the weather is favourable, but unless they can be protected quickly when necessary, the wood is often spoilt for forcing purposes. Pits, frames, and cool-houses may be used for the dwarfier plants, but weeping standards in pots will require more headroom. The wood needs to be thoroughly ripened, but it must not be frosted. Unless the wood is

methods of grafting in my next notes, meanwhile the new roots will be forming, and it is desirable to have the stock a little more forward than the scion. Stocks that were potted a few weeks earlier are quite equal to those established during the summer, as the roots start to grow quickly when placed in fresh soil and plunged in a pit or cool frame. *Practice.*

NOTICES OF BOOKS.

THE CAMELLIA.*

SOME years have elapsed since M. Le Texnier began to write his excellent series of little books on the history of some of the most popular florists' flowers, including the Chrysanthemum, Dahlia, Carnation, Hyacinth, Tulip, Begonia, Camia, Fuchsia, and Cyclamen. All the books are more or less uniformly interesting and instructive, and, what is perhaps more important than all, the result of the author's personal research.

Among English horticultural writers we have no one exactly like Le Texnier, for besides giving us this useful series of floral histories, in which there is much matter new to English readers, he has also written in identical style biographies of some of the great gardeners and amateurs.

The historical and literary aspects often hold a far less important place in gardening books than they deserve. When a competent grower of a particular flower compiles a treatise on its care and culture he begins his work by adding a few pages on the subject of history, which part of the book is frequently the least satisfactory, and might, in many cases, be omitted altogether.

M. Le Texnier has not only the patience necessary for such work, but all the material at hand for gleaming it from authoritative sources. He possesses also the ability of sifting and arranging his matter, beside the literary skill to place the result in an acceptable form before his readers. No student of floricultural history and literature should be without the complete series known as *Essays sur l'Histoire de Quelques Fleurs d'Ornement*.

"Le Camellia" occupies 40 closely-printed pages. The story of the flower is told from the earliest times, beginning with Kaempfer's reference in his *Amanitates exotica* in 1712. The progress of its culture in England, Belgium, France, Holland, and elsewhere in Europe is given in detail, and forms the groundwork upon which a much more elaborate historical account could easily be prepared. The plan of "Le Camellia" is uniform with the other of the series, and those English authors on floricultural matters whose knowledge is often limited to what has happened within their own country would do well to widen it by a perusal of some of these concise little works, which should find a permanent place on the shelves of their reference library. C.

ORCHIDS FOR AMATEURS.†

The object of this new work on Orchids is to show the amateur gardener that these plants do not all require a special house for their culture, but that many may be grown successfully in houses where ordinary greenhouse plants are cultivated. The author's experiences are those of an amateur who grows Orchids on a small scale, and he has taken considerable pains to convey his ideas in simple language. The book is divided into three parts. The first section deals with Orchids suitable for cultivating in cool houses, some 60 species being enumerated with remarks as to their treatment, housing and other requirements.

The second part treats of Orchids suitable for growing in a warm house. About 50 species are dealt with, and short chapters on potting, watering and other cultural details are given.

The remaining part gives the author's idea of the treatment of imported Orchids, propagation, insect pests, fungous diseases and other matters relating to Orchids. The remarks certainly justify the title, for it may be taken as one of the merits of the book that the amateur is in evidence from the first page to the last. There are some recommendations in the book which

might give new ideas even to expert Orchid growers. For example, under the heading "Feeding" we find, "To prevent *Oncidium* from deteriorating, feeding, supplemented by annual repanning, is of absolute necessity. Guano should be given three times a week during the growing season, and when in flower. Add a teaspoonful of the dry guano also to the compost of *Oncidium macranthum* and *Marshallianum*. If few, and repanned annually, this deterioration will be effectually checked." This, and some other remarks are difficult to understand, but the author has evidently derived a considerable amount of pleasure from his own small collection of Orchids, and has carefully noted the methods which have produced the best results. There are 20 illustrations of popular Orchids, and the book is well printed and furnished with a good index.

It is a pity that the title is the same as that of the little work issued some time ago by Messrs. Mansell & Hatcher, the well-known Orchid firm of Rawdon, Leeds.

BRITISH ASSOCIATION.

(Concluded from p. 227.)

PART PLAYED BY ENZYMES IN THE ECONOMY OF PLANTS AND ANIMALS.

Much labour has been expended during the last few years in the endeavour to become better acquainted with the nature of the bodies known as enzymes, and to realise more completely the exact part they play in the economy of plants and animals. The importance of a greater knowledge of these bodies, if we are to understand more fully the nature of life and life-processes, has been recognised for some time.

Dr. E. F. Armstrong's paper, which was read at a joint meeting of the Chemical and Agricultural sections of the British Association, was to a large extent a résumé of the interesting investigations carried out by his father and himself.

There seems no doubt that the products formed during the action of an enzyme accumulate and combine with that agent, bringing about a stoppage of the reaction and preventing the changes from going too far.

An enzyme does not usually occur in an active state, but requires the presence of another substance to set it free. Thus Starling found that there was a substance "secretin" which was not destroyed on boiling (and was, therefore, not itself an enzyme), the presence of which was necessary for the liberation of enzymes in the bodies of animals. Also, the material to be acted on is not always readily accessible to the enzyme, e.g., in plants the glucosides and the enzymes which decompose them are stored usually in different cells. To secretin, and some other substances like it, Starling gave the name "hormone," and Dr. Armstrong has thought fit to extend the use of this term to include other exciting substances, in many ways allied to secretin, such as chloroform, toluene, &c.

Thus a leaf of *Acubia* placed in toluene water very soon blackens, the toluene serving as a hormone and liberating the enzyme, which acts on the glucoside in the leaf to produce as a result a black substance. A Laurel leaf treated in the same way does not blacken, but hydrocyanic acid is evolved, the particular change in any case depending, of course, on the nature of the glucoside present in the leaf.

In plants, a large number of glucosides occur, but in such small quantities that their isolation is very difficult except in seeds, &c. Miss Wheldale has obtained evidence that the production of some plant-pigments is due to the interaction of these glucosides and enzymes. Possibly the production of perfumes is due to a similar cause, the special period at which the perfume is liberated may possibly be determined by that at which a hormone is produced. Most of the substances tacked on to the sugar in the

glucosides can act as hormones: so that on the hydrolysis of these glucosides these hormones are liberated and further degenerative changes occur. Ammonia and carbon-dioxide also act as hormones. In this connection, Dr. Russell's experiments on the stimulation of root growth in partly sterilised soils may be mentioned. Briefly, the partial sterilisation results in a differential destruction of the soil organisms, the net result of which is that ammonia is liberated in the soil.

The high stimulative effect of ammonium sulphate when used as a manure may receive some explanation on these lines. It is quite possible that each glucoside has its own particular enzyme, but until the isolation of glucoside and enzyme can be effected with more precision than at present this cannot be decided. It is at least certain that a plant has in, say, its leaves, enzymes capable of acting for the most part only on the glucosides in those leaves. The enzymes occurring in the seeds, however, are much more catholic in action.

It is possible that the total number of enzymes present in the seed may in some way become segregated in the various members of the mature plant. Whether this is the case, or whether the enzymes in seed and leaf are totally different in character, remains for future work to show.

A point of considerable interest is the variation of glucoside with conditions. Thus, last year *Lotus corniculatus* was found to contain no hydrocyanic acid except in some few plants all growing under rather arid conditions. This summer, on the contrary, practically all plants examined from different parts of England contained hydrocyanic acid; some plants from Scotland, however, contained none. This shows that we are not dealing here with two varieties of *Lotus*, but that the chemical nature of the plant is altered by different external conditions.

The case of some of the *Vicia* again is worth noting. Through the whole of their growing period they show no trace of hydrocyanic acid except just before the pods begin to ripen and turn black.

DUNE VEGETATION.

At a meeting of the Botanical Section, Prof. Cowles, of Chicago, gave an account of the vegetation of the moving dunes which border the eastern shores of Lake Michigan.

In some places these dunes present a front of moving sand 40 metres to 60 metres high, advancing steadily and submerging the forests and cultivated lands in their line of advance.

The rate of movement has been measured over a number of years by Prof. Cowles and his students, by "blazing" the trees which stand in the path of advance, and the interesting photographs were shown recording striking changes in the topography of the country which had occurred during the last 15 years.

The ecology of the dune vegetation is peculiar. Certain species, e.g., *Tilia americana* show amazing vitality, and respond to the gradual submergence in sand by sending out adventitious roots from the upper branches. One such specimen, 40 metres high, submerged to a height of 38 metres in sand, was in full flower and leaf when photographed. Other curious results occur, for example, the American vine, *Vitis vulpina*, growing as a climber, is often left marooned at the apex of the hillock of sand under which the trees originally supporting it are buried.

Another interesting feature is the distinct succession of floras which establish themselves as the dunes become more stable. The first species to become established are various sand-breeding grasses, such as *Psamma arenaria*, also trees like *Populus deltoides*, the latter showing remarkable vitality, and being the first arboreal species to become established as well as the last to disappear when overwhelmed by sand. Next occurs a zone of shrubs, characterised by *Prunus pumila*, various species of Willow, accompanied later by *Vitis vulpina*.

* *Essays sur l'Histoire de Quelques Fleurs d'Ornement*, Le Camellia. (Paris: Librairie Horticole.)

† *Orchids for Amateurs*, by C. Allyn Harrison, edited by T. Sanders, F.L.S. (London: W. H. and L. Collingridge, Aldersgate Street.) Price 2s. 6d.

As the dunes become more stable, various species of *Pinus* become established with *Quercus velutina* and a characteristic undergrowth quite distinct from that of the open dunes. Finally, behind the dunes proper, a dense forest of various mesophytic trees occurs as the last stage in the series, including *Pinus Strobus*, Hemlock Spruce, Beech, *Liriodendron tulipifera*, and *Nyssa sylvatica*.

A point of some interest is the fact that certain mesophytic and marsh plants show the greatest amount of resistance to the onslaught of the extremely xerophytic conditions induced by the sand, and not, as might be expected, the more

structure, but on account of the nature of their protoplasm. Well-known cases are the Lichens, and annual plants on the formation of seeds.

Less known are some of the desert plants of Algeria, for example, a species of *Peganum*. This plant is structurally a hygrophyte, with large leaves, thin cuticle, stomata on both sides of the leaves, &c.: nor has it the long tap root of plants like the *Colocynthis*, enabling it to make use of subterranean water supplies. It has, however, one peculiarity in which (as Fitting showed) it differs from most plants, namely, the very high osmotic pressure of its cell sap. In consequence of this, the root hairs of this plant are able to obtain

As a result of many experiments, it was found that the size of the openings of the stomata was proportional to the rate at which water was given off, and it was therefore concluded that the stomata form, if not the sole, at least the chief regulating mechanism of transpiration.

In conclusion, attention was drawn to the difficulty of saying whether, under given conditions, it was best for the plant to have its stomata open or closed. Thus in a hot, dry climate, when one would expect the stomata to close, so as to economise water, they sometimes remain open. In this case, the explanation appears to be that closure of the stomata (and the consequent preventing of evaporation) would result in a fatal overheating of the leaf.

ELECTRICITY AND PLANT LIFE.

The effect of electricity on certain functions of plant life, a subject which has always appealed to popular fancy, was dealt with in two papers read before the Agricultural section.

The first of these papers was by Mr. J. H. Priestly and Miss E. M. Lee. The experiments consisted in ascertaining the effect of a direct current on the activity of bacteria in decomposing milk. In the case of weak currents the decomposition usually proceeded rather more rapidly where the current was used than in the control where no current was used, though the results obtained do not seem entirely conclusive. Currents higher than about 40 microamperes appeared to retard growth, 150 microamperes causing complete inhibition.

The second paper dealt with investigations of Messrs. J. H. Priestly and R. C. Knight on the effects of electric discharge on the respiration of Pea seedlings.

The authors claim to have shown that the rate of respiration is (1) decreased when a direct current is used, even when this is very weak, (2) slightly increased when an alternating current is used, (3) very considerably increased when an overhead discharge of high voltage is employed. The authors' numbers, however, do not in every case support this interpretation very convincingly. In experiments of this kind it is well to remember that, besides acting directly on the plants used, the current may act indirectly by altering the conditions in which the plant is growing.

Field experiments were also carried out, and an increase in crop, though not always very marked, was generally obtained. When the poles, bearing the electrified wires, were moved to some other part of the field, it was this new area which usually showed the increase in the year following. The evidence of there being an increased yield, and the amount of the increase, do not seem to justify the application of the scheme on a commercial basis at present.

LIGUSTRUM OVALIFOLIUM MULTIFLORUM.

This beautiful free flowering form of the broad leaved Privet was a happy discovery made by Mr. George Paul in a Continental nursery, where it was planted among *L. ovalifolium* in a hedge. His quick eye noticed its unusual floriferousness, and he carried it off to become the parent of many a handsome free-growing bush, instead of leading a life of constant shearing in a trim hedge. In early July every axillary shoot ends in a spike of pure white flowers, and these are so freely produced that, as the accompanying illustration (see fig. 109) shows, they almost hide the leaves.

In early July it is one of the most beautiful sights in the garden, but, unfortunately, it is endowed with the strong Elder-like scent of the other members of the Privet family, which is not agreeable to most people. I have found it as hardy as the ordinary Privet. A severe winter browns and removes many of its leaves, but has not so far killed back any shoots. *E. A. Bowles, Waltham Cross.*



(Photograph by J. A. James.)

FIG. 109. *LIGUSTRUM OVALIFOLIUM MULTIFLORUM* IN MR. BOWLES'S GARDEN.

xerophytic forms, which are, curiously enough, the first to give way as the sand advances.

TRANSPIRATION OF PLANTS.

A SEMI-POPULAR lecture was delivered by Dr. Francis Darwin, F.R.S., entitled "The Balance sheet of a Plant."

The lecturer confined his attention, for the most part, to adaptations in plants against injury from loss of water of a more or less temporary character.

It was pointed out that, besides the temporary xerophylls conferred on some plants (e.g., deciduous trees) by their structure, there are other plants which are able to withstand temporary desiccation, not by reason of any peculiarity of

water from soil particles much more efficiently than is the case where the osmotic pressure is of the normal magnitude.

It was suggested that *Peganum* might be only an extreme case of a general phenomenon, and that there is some evidence that when a plant in a country like our own begins to suffer from loss of water, the osmotic pressure begins to go up, automatically enabling the root hairs of the plant to obtain water from the soil more effectively.

The lecturer also dealt in detail with the experimental work that had recently been occupying himself and Miss Pertz—namely, the disproving of Lloyd's contention that the stomata have no regulatory function on transpiration.



The Week's Work.

PLANTS UNDER GLASS.

By JAMES HEDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

SEEDS FOR PRESENT SOWING.—A sowing of Sweet Peas made now will furnish plants that will be useful in early spring, either for decoration or for furnishing cut blooms. Those intended for specimens should be grown in 9-inch pots, but those for supplying cut flowers may be grown in boxes. The boxes may be accommodated at the ends of houses next to the roof-glass, where they will receive plenty of light. They will occupy little room, and give a good return without much trouble. In either case, the seeds should be sown in small pots, three seeds being a sufficient number in each pot. They should be germinated in a cold pit or frame until the season of frost approaches, when they should be removed to a warm house. The shoots may be pinched when about 3 inches high, and, if the plants are growing freely, they may be afforded a larger receptacle. Mignonette may also be sown now. Some of the best plants of Mignonette that I ever grew were raised from seed sown at this time of the year. Sow in 4½-inch pots, placing a little fowl dung over the drainage materials and mix mortar rubble with the loam instead of silver sand. Make the soil very firm, and use it preferably when on the dry side, but water it before the seeds are sown. Place the pots in a cold frame until the seeds have germinated, and remove all but four or five of the seedlings from each pot. When the plants have commenced to make a good growth, remove them to a shelf in the greenhouse as near to the roof-glass as possible, as sunlight is essential to success. The beautiful *Nemophila insignis* is of great service in the early spring as an edging plant in the conservatory. It may be placed around groups of other plants, producing a pretty effect with its drooping shoots covered with blue flowers. A batch of White Primulas, edged with this delightful annual, is very effective. The seed should be sown now, and the plants treated as advised for Mignonette.

ASCLEPIAS CURASSAVICA may also be raised from seeds sown at the present time. They should be germinated in a moderate heat and afforded a good treatment to provide strong specimens for flowering next season. For the present, they may be allowed a moderately cool treatment, and when the winter arrives they should be grown on steadily.

HIPPEASTRUM.—Seeds of *Hippeastrum*, which is better known to many gardeners as *Amaryllis*, should be sown at once if this has not already been done. This plant is much better raised at this time of the year than in the spring. The seeds need to be sown with extra care, as each one must be inserted on its edge. A budding knife may be used to make holes in which the seeds are inserted. Sow in square seed-pans filled with loam and leaf-mould mixed with silver sand. Raise the plants in a stove temperature, and see that they do not receive a check at any time. Place the pans in a position close to the roof-glass, so that the leaves do not become unduly elongated.

CYCLAMEN LATIFOLIUM (PERSICUM).—Late September or early October is soon enough for sowing seed of the florists' Cyclamen, for if the sowing is made much earlier the greater portion of the early growth is formed during dark days, and the result is that the plants are handicapped. The colours should be kept distinct, which is an easy matter if seeds are procured from a reliable firm. Use a soil similar to that advised for *Hippeastrum*. Scatter the seed thinly over the surface and press it firmly into the soil, then apply a thin layer of a sandy mixture. Place the seedlings upon a shelf in a temperature suitable for promoting healthy growth.

CORDYLINE INDIVISA AND C. AUSTRALIS.—Both these plants will probably have ripened a considerable quantity of seed this summer, which should be sown as soon as it is ripe, so as to lose no time in raising the plants. Treat the seedlings as advised for Cyclamen.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Ashton Clinton Gardens, Buckinghamshire.

PRUNING.—The pruning of fruit trees may be undertaken at any time from autumn to spring, provided the work is done during mild weather. As soon as the leaves commence to fall, and sometimes earlier, if the wood is well ripened, a start may be made with the pruning of Apple and Pear trees. The pruning of the trees early assists the fruit-buds to become plump, well ripened, and in every way stronger than if the pruning is deferred until the spring. Although it is advantageous to prune trees early, yet, if the wood is still green, and the buds in an immature condition, the operation is better deferred until the spring, but not until the sap has commenced to rise. When the wood is unripened, the sap is in a more or less active condition, and will continue so until the winter sets in. By pruning unripened shoots in the autumn, the remaining buds would, in all probability, be more or less injured and the tree weakened. Unripened shoots and immature buds are always liable to injury from frost, and if the pruning is postponed until spring, damaged shoots may be cut back to sound wood. For the same reason, many growers defer the pruning of Fig and Mulberry trees until the spring, as these trees are especially liable to injury from excessive cold. Others neglect the pruning of Peaches and Nectarines until the trees are bursting into bloom, a practice I do not advocate, as it causes the blossoms nearest the ends of the recently-pruned shoots to drop. Where there is an extensive range of wall trees, early varieties of Apples and Pears should be pruned first, and, later, during mild weather, Peaches, Nectarines, and Apricots on south walls. These may be followed by trees growing on west and east walls, and the last to be pruned are those planted in a north aspect or in the open. In the pruning of fan-trained wall trees, special care should be taken to retain healthy, young wood in the centre of the trees, otherwise, when the trees should be at their best condition, they will be partly destitute of fruit-bearing wood. In the training and pruning of young trees, careful attention is required to form a good foundation to supply suitable wood for future years, for when this is neglected, and the centres of the trees become destitute of wood, it is only with great difficulty that suitable shoots can be made to grow—especially in the case of Peach and Nectarine trees—without pruning back to the main branches of the tree, which means the loss of one or two seasons' fruit. It sometimes happens that gross-growing shoots are formed by the tree; these, if not required for furnishing the wall, should be removed as soon as possible. Occasionally it may be found expedient to remove a large branch altogether, in which case a luxuriant growth will, if shortened to the required distance, supply a number of lateral growths for filling the vacant space. Stone fruits are much more susceptible to injury by the removal of a large limb than are Apples and Pears, and in no case should a bare stump be left in the expectation of lateral growths forming, as these stumps almost always canker and ultimately die.

THE ORCHID HOUSES.

By H. H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HUGHES, B.K.V.O. (C.I.E.), Westcombe, Gloucestershire.

ONCIDIUM. The plants belonging to the *Oncidium* section of this genus, namely, *O. Forbesii*, *O. curtum*, *O. Gardneri*, *O. crispum*, *O. Martianum*, and *O. Marshallianum*, are characterised by their rough, wrinkled, pseudo-bulbs, of a bronzy tint, and their leathery leaves. *O. Marshallianum* blooms in late spring and early summer, whilst the others display their gay sprays in late summer and autumn. Amongst the many beautiful and free-blooming species in this favourite genus, few can surpass *O. varicosum*, and certainly none can excel it for autumn flowering. The blooms of all the plants I have mentioned are showy and lasting, and produced freely upon erect, branching spikes; consequently they are first-class exhibition plants. In the case of newly-imported specimens, these should not be allowed to exhaust themselves in supporting flower-spikes the first year they are in cultivation, for the enormous number of blooms sometimes borne upon a single panicle

taxes the plants very severely, and so weakens them that they take a very long time to recover. If the inflorescences are cut away, saving first a flower or two just to prove the variety, the plants should flower beautifully in the next season. Even with established plants, care should be taken that the flower-spikes are not left too long upon them, and, if there are any specimens in a debilitated condition through carrying a large inflorescence last year, the spikes of these should be removed soon after they appear. A mistake often made in the cultivation of these *Oncidiums* is growing them on a low stage, a long way from the light, in deep pots and a large quantity of compost. They are more satisfactory when grown in shallow pans or baskets, suspended close to the roof-glass, and near the ventilators, in a position where the plants are exposed to the light, but not to bright sunshine. In such conditions, the growth will be hard and solid. They need considerable ventilation, especially at this season, when the pseudo-bulbs are filling out, for there are few Orchids which suffer more if kept in a confined atmosphere. A close observation of the roots is the best guide as to the quantity of water these plants need at any season. Plants growing and rooting freely must be watered freely, and it will be found that the roots are generally very active at the time the flower-spikes are forming. All these *Oncidiums* are best wintered in a well-ventilated, cool structure, where they will remain at rest, and the plants should be given just enough water to enable the pseudo-bulbs and leaves to retain a plump and healthy condition.

CATTLEYA CITRINA.—This species is a native of Mexico, where it is found growing at a very high altitude, consequently the plants do not require much heat in cultivation. They must, however, be exposed to the light, and treated to plenty of ventilation. The best method of cultivation is to fasten the plants securely on blocks of wood or Teak-wood rafts, the latter being preferable, as a little peat and moss can be packed in between the bars for the roots to ramify. The plants are now in full growth and rooting freely, therefore they require a liberal but not excessive supply of water. When the pseudo-bulbs are fully made up, and the plants are resting during the winter, they will bear drought without injury, but as soon as the flower-buds appear in the spring a good supply of moisture is again needed.

FRUITS UNDER GLASS.

By E. BEAKETT, Gardener to the Hon. VICARS GIBBS, Aldenham House, Hertfordshire.

PINEAPPLES.—With the approach of autumn, less moisture must be employed in houses where Pines are cultivated, and damping and syringing must be reduced accordingly. The night temperature should be reduced gradually until a minimum of 55° to 60° is reached; a few degrees more or less may be permitted in accordance with the weather conditions. The roots also will need less moisture at this season. Fruiting plants may still be given applications of weak guano water, but not in quantity sufficient to keep the soil in a sodden condition. When the use of much fire-heat becomes imperative, the atmosphere must be moistened, as dry air is harmful. The shading may be removed from the roof-glass, and on bright days a slight damping overhead will prove beneficial, closing the pit early in the afternoon. Admit a little fresh air whenever the weather allows.

EARLY VINERY.—Where it is customary to start vines during the month of November, to provide Grapes early in May, attention must soon be directed towards getting the house, rods and borders in order. Cleanliness is of the greatest importance, therefore the glass and woodwork should be washed thoroughly, and the latter painted. If the houses are not repainted annually, then extra care must be exercised in washing, and any cracks or joints offering a hiding place to mealy bug, painted with paraffin. The pruning of the vines need not be deferred when it is ascertained that the growth is well matured. Prune the laterals to two good buds, and use a pruning knife in preference to secateurs, avoiding long, slanting cuts. Remove any loose bark from the main rods, but avoid paring them severely. By means of a stiff brush, wash the stems well with a warm solution of

insecticide, exercising the greatest care not to damage the buds. If mealy bug is present after washing the rods twice, paint them with the mixture I advised in the Calendar for January 7, p. 7. When the vines have been attended to, tie the rods up out of the way and commence top-dressing the border. Carefully remove any loose soil and litter on the surface, and apply, as a top-dressing, a compost specially mixed or a layer of whole turves, after first sprinkling bone-meal or a patent *vino manure* over the border. If the soil shows signs of excessive dryness, give a good watering before these materials are applied. Cleanse the exterior of the hot-water pipes, and afterwards paint them with a mixture of lamp-black and oil.

FIGS.—The earliest forced Fig trees that are permanently planted out should be encouraged to ripen up their growth. As the shoots mature, water should be withheld from the borders until the soil becomes dry on the surface. A free circulation of warm air will accelerate the ripening of the growth. The foliage should be syringed so long as it remains, to keep red spider in check. Endeavour to keep the house tidy and remove the fallen leaves to the fire or rubbish heap.

THE FLOWER GARDEN.

By R. P. BROTHMEYER, Gardener to the Earl of HAVERGATE, K. C., Longmeadow, East Leamington.

PROPAGATING.—Cuttings may be taken at any time now of the hardier bedding plants, including *Violas*, *Pansies*, *Veronica*, *Andersonii*, *variegata*, *Anthemis tinctoria*, *Gazania splendens*, *Antirrhinum*, *Calceolarias*, *Chrysanthemums* and *Nepeta Mussinii*. All these plants are most easily dealt with if the cuttings are inserted from 2½ to 3 inches apart in a shallow bed of compost, prepared for them in cold frames. It is advisable to see that the cuttings are kept from flagging, both before and after insertion. Together with the above, cuttings of *Lavender*, *Rosemary*, *Parkinson's Sage*, shrubby *Veronicas*, and many other suffrutescent plants may be inserted for increase of stock; they should all be well rooted by next March. Many *Dianthus* having a cushion-like habit, notably several varieties of *Sweet William*, *Dianthus plumarius* and *Pink Mrs. Sturges*, will, if pulled to pieces, be found to root freely. The seeds of annuals intended for early flowering should be sown without delay. The seeds of *Gladioli*, *Sweet Peas*, *Kniphofias*, *Montbretias*, and *Carnations* are ready for gathering, and should be carefully watched, to prevent their falling off the plants and being lost.

SWEET PEAS.—These have been some failure this season in many gardens that even the great heat and abnormal drought do not seem sufficient to account for their lack of success. I had no water to spare for our plants, but, strangely enough, they reached an average height of 9 feet high, and flowered up to the end of the present month. I feel sure that in many cases the cause of failure is too close planting. It has been my practice for years to allow 2 feet between each plant, and I obtain as many flowers as most people do from four times the number. Very firm soil seems to be essential to success. It is not enough in the case of a light soil to trench in the autumn, and then leave the ground to become firm merely by allowing it to lie exposed to the weather. The soil should be firmly compressed by treading down the separate layers during the operation of trenching. I have found this necessary also in the case of other plants, including *Carnations*. In order to carry out this process successfully, the ground must be in a good condition and sufficiently dry, and those who can proceed now with the preparation of the soil for next year's crop will be wise to do so, and not to defer it until too late. Surface hoeings and mulchings are good in their way, but do not take the place of a proper initial preparation. The question of an efficient water supply for the garden has been brought well to the front this year. I have been informed by gardeners that they have been obliged to resort to all sorts of devices in order to obtain enough water to keep the most important plants alive. One had to employ a locomotive to draw the water from a distance. In some cases it is the flowers that have suffered; in some it is other crops. Nothing can save such flowers as *Phloxes*, *Rudbeckias*, *Chrysanthemums*, *Dahlias*, *Violas*, *Antirrhinums*, *Godefrids*, and *Begonias* if the water supply is

insufficient. Mulching is a great help, but alone it is not enough. Another fact which is well known in this connection is that watering to be effective must not be too long delayed. Once the soil is allowed to become dry, it is an extremely difficult matter to re-moisten it; and, for this reason, in a hot, dry year like this it is found very much better to apply a small quantity of water at short intervals—say, two or three times a week—than to give a copious, but infrequent, supply. Another important matter in a dry season is to strengthen the liquid used for watering with manure, either superphosphate of lime, sulphate of ammonia, dried blood, or fish guano. During very dry weather plants are capable of appropriating an almost unlimited quantity of manure, and pure water seems to do but little good—it keeps them alive, but produces very small effects in the way of growth and flowering.

THE KITCHEN GARDEN.

By JOHN DESS, Kitchen Gardener, Foreman, Royal Gardens, Windsor.

PARSLEY.—Parsley should not be allowed to become over-grown, or the leaves will lose their colour. If the foliage is cut down now and a good watering afforded the roots, the new growth will be of a much better quality, and the plants will withstand the winter better than if left uncut. If cold frames are available they may be utilised for growing Parsley to afford supplies during the winter; the plants should be pricked off at a distance of 6 inches apart. The lights should not be placed on the frames until the weather becomes unfavourable or the plants will become weakly and drawn. The soil in which they are planted should not be too light in texture, and should be trodden moderately firm before the young plants are put out. Give frequent waterings during the autumn so that the plants may become established before winter arrives.

WINTER SALADS.—Every available cold pit should be filled with *Lettuce* or other salad plants, so that they may become established before the winter arrives. It is a much better practice to plant winter salads where they will grow without disturbance, than to lift them from the open ground after they have grown to their full size, sometimes after they have been injured by frost. If seeds were sown at the end of August, there should be plenty of strong *Lettuce* plants suitable for planting in pits. The soil should be raised to within 15 inches of the roof-glass and trodden lightly, whilst moderately dry. Allow 9 inches between the plants, as plenty of space is required to stir the soil between the rows with the Dutch hoe. The lights should not be placed on the frames until the very latest, except during heavy rains. A small sowing of *Lettuce* seed may be made now to furnish plants for early spring supplies. The seedlings should be protected from inclement weather and planted in cold pits as early in the new year as possible.

FRENCH BEANS.—French Beans growing in cold pits should be protected by the lights at night, which should be removed again in the morning. Give a light dusting of artificial manure previous to affording water, and stir the soil between the rows to promote a clean, healthy growth. Plants growing in open borders should have some protection afforded them on cold nights, so that pods may be gathered from them as far into the autumn as possible. Gather the pods whilst they are quite young, whether required for use or not, so that the plants may continue in bearing.

HERBS FOR WINTER USE.—No time should be lost in making provision for the supply of green herbs required throughout the winter. Prepare a gentle hotbed in a slightly heated pit, and cover the bed with a few inches of fine soil. Roots of *Mint* should be lifted carefully, placed closely together on the bed, and covered with fine, sifted leaf-soil, which should be washed in amongst the roots with clean water, warmed to 70°. In about 10 days the young shoots will appear above the surface of the soil, at which stage plenty of fresh air should be afforded to prevent the growths from becoming drawn. Tarragon may be treated in the same manner, lifting the roots with as much soil adhering to them as possible. Chives may be placed in the same pit, but the plants should

be cut over at least a month before they are required for forcing. Sorrel does not require bottom heat, but a good, heavy soil, and plenty of water to keep the plants growing freely. *Margoram* may occupy part of the same pit, but should be allowed plenty of air, or damping may set in. The plants should be grown in pots, and be placed in a night temperature of 45°.

CHERVIL.—The last sowing of Chervil should be made at once, preferably in a cold pit, where air may be given freely to keep the crop from becoming drawn, and to promote a dark green colour in the leaves.

THE FRENCH GARDEN.

By L. A. AQUINAS.

WINTER CROPS.—French Beans raised from seeds sown in July are now in full bearing. The lights are placed in position, but ventilation is afforded both day and night whilst the weather permits. The main batch of Celery has benefited by the moist condition of the weather, and the plants are growing splendidly. It will be preferable to defer bleaching the leaves for two or three weeks, unless a constant supply is needed. The Celery which has been grown in the old manure beds must be marketed as soon as possible, as the beds should be broken up before wet weather sets in. Carrots raised from seeds sown in July are ready for bunching. This crop has been excellent this year, and a very profitable one where plenty of water has been afforded.

SPRING CROPS.—Spring Cabbages should be planted without delay in well manured ground. The Cabbages raised late in August have proved very useful, as those of the earlier sowings were too strong for planting out. A few Cabbage seeds have been inserted in a frame for procuring plants for cutting in June when there is generally a great scarcity of green vegetables. They will be transplanted in February. Cauliflower seeds that were sown about the middle of September have germinated well, and the seedlings are now through the ground. From this stage, ventilation should be given freely both day and night in order to obtain well-hardened plants. Set frames on the ground and place six or eight barrow loads of well-decayed manure in each frame, so that the plants may be close to the glass. The plants will be pricked out about the middle of October, 750 to 800 per frame, and an ample allowance will be made for losses over and above the number required for the following spring. Another batch of Cauliflower seeds should now be inserted under cloches for procuring plants for placing out-of-doors late in March, as those sown in September are often too strong for the purpose, being only suitable for planting under glass earlier in the month. The sowing of Lettuces for a spring crop will be commenced about October. The Cabbage Lettuce "Little Black Gott" and *Cos Lettuce* "Paris Grey" are sown first at an interval of two or three days, whilst the varieties *White Passion* and *Paris White* will not be sown before October 15, for they can only be planted out in March. The winter quarters for all the Lettuces must be ready within a few days. The ground should be well dug, raked, and afforded a top dressing of decayed manure that has been passed through the ½ inch screen. The manure should be spread evenly over each bed in depth according to the quantity at command. The cloches are so three rows per bed with 1 inch space between each. Where possible, a path, 1 foot in width, should be allowed between each bed.

STRAWBERRIES.—Strawberry plants intended for forcing should be trimmed and placed in frames in a well-sheltered, dry situation. The lights should be placed in position on the frames to protect the plants from rains, but ample ventilation must be afforded both day and night.

MUSHROOMS.—The beds made early in September have been spawned, three rows of spawn having been placed on each ridge. After a few days the mycelium will have spread into the manure when the old spawn should be taken out. A top-dressing formed of two-thirds old mortar and one part good loam passed through a screen should be put on the ridge to the depth of 1 inch and well pressed down. The lights should be kept closed and covered with mats. During damp weather the mats should be removed during the daytime to avoid an excess of moisture in the frames.

APPOINTMENTS FOR OCTOBER.

- TUESDAY, OCTOBER 3—
Society Hort. Assoc. meet.
- WEDNESDAY, OCTOBER 4—
National Chrysanthemum Soc. Sh. (2 days).
- SATURDAY, OCTOBER 7—
Soc. Française d'Hort. de Londres meet.
- MONDAY, OCTOBER 9—
United Hort. Benefit & Prov. Soc. Com. meet.
- TUESDAY, OCTOBER 10—
Roy. Hort. Soc. Autumn Fruit Exh. (2 days).
- WEDNESDAY, OCTOBER 11—
Affiliated Mut. Imp. Soc. Ann. Meet. at R.H.S. Hall, at 3 p.m.
- THURSDAY, OCTOBER 12—
Soc. Nationale d'Hort. de France (Paris) Exh.
- WEDNESDAY, OCTOBER 18—
R.H.S. Ireland Winter Sh. (2 days).
- MONDAY, OCTOBER 23—
Nat. Chrys. Soc. Executive Com. meet.
- TUESDAY, OCTOBER 24—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Rev. Prof. Geo. Henslow, on Prof. Hugo de Vries' "Theory of the Origin of Species and Varieties by Mutation.")
- WEDNESDAY, OCTOBER 25—
Croydon Chrys. Sh. (2 days). Irish Gard. Assoc. and Bener. Soc. meet. Hereford Fruit and Chrys. Sh. (2 days).
- FRIDAY, OCTOBER 27—
Maidenhead Chrys. Sh. (2 days).
- TUESDAY, OCTOBER 31—
Brighton Chrys. Sh. (2 days). Haywards Heath Chrys. Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—53° 1°.

ACTUAL TEMPERATURES:—

LONDON.—(H. J. Sharpe, September 27 (6 p.m.): Max. 69°; Min. 51°.)

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, September 28 (10 A.M.): Bar. 29° 9"; Temp. 59°; Weather Overcast.

PROVINCES.—H. J. Sharpe, September 27: Max. 63 Cambridge; Min. 53 Newcastle.

SALES FOR THE ENSUING WEEK.

- MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—
Dutch Bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 10.30.
- MONDAY, WEDNESDAY, AND THURSDAY—
Dutch Bulbs, at Stevens's Auction Rooms, 38, King Street, Covent Garden, at 12.30.
- TUESDAY AND WEDNESDAY—
Thirty-seventh Annual Sale of Nursery Stock at Sunningdale Nurseries, Windsorham, Surrey, by Protheroe & Morris, at 12.30.
- WEDNESDAY—
Ornamental Palms and Plants, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.
- A small collection of Japanese Dwarf Trees; also a consignment from Belgium of Palms, Bay Trees, Azaleas, &c., at Stevens's Auction Rooms, 38, King Street, Covent Garden, at 2.
- FRIDAY—
Orchids, at Protheroe & Morris's Rooms, at 12.45.

The facts already recorded in our article on this subject in last week's issue demonstrate that the normal and natural phases of development through which such a simple fungus as *Saprolegnia mixta* passes are controlled by definite external conditions. There is no innate necessity for such a plant to pass from a vegetative to a reproductive stage. Provide it with certain external conditions, for example, with a rich and continuous supply of nitrogenous food, and the fungus remains indefinitely in the vegetative phase. Alter these conditions and it passes into the reproductive phase. We have now to consider the results of similar experiments, which, like those already recorded, are due to Professor Klebs, on the influence of definite changes of conditions on the higher plants.

It will be recognised, as already indicated, that the problem is much more difficult of re-solution in the higher than in

the lower plants. Unlike a simple fungus, the body of which consists of a limited number of similar cells, the flowering plant is made up of an enormous number of cells. Moreover, the cells which constitute the body of the flowering plant are by no means all alike, but show, as the result of their specialisation to different kinds of work, extraordinary diversity of shape and size. Thus a root hair cell has the form of a hollow tube, a cell of the surface of a leaf that of a flat plate, and so on. Because of this diversity of function, and also because of differences of position—some being on the surface, others beneath the surface—the several cells of a flowering plant are affected differently by a definite change in external conditions. For yet another reason, which horticulturists in particular will appreciate, the problem of determining the precise effect of a change in external condition on a flowering plant is rendered peculiarly difficult. The tissues and groups of tissues into which the cells of a plant are regimented have definite and limited functions. Some serve the purpose of collecting food material, some that of manufacturing food, others perform the function of reproduction. Just as in a great industrial undertaking—in a shipyard, for example—all sorts of preliminaries have to be attended to before the undertaking can be launched successfully, so is it with the complex organism which we call the flowering plant. Our analogy of a shipyard will help us to a clearer view of this fact. Before a single plate is laid, much preliminary work in the way of assemblage of material has to be carried out. So in the plant, before a flower-bud is formed, the plant has had to carry out the complex work of assembling material of the kind proper for the building up of the flowers. Hence, it follows that the external conditions which determine luxuriant production of flowers are not necessarily those which obtain at the moment when the flowers are about to open; but, on the other hand, are those which operated, it may be months or even the year, before. The gardener reveals a perfectly sound knowledge of this principle when he insists that the amount of fruit borne in any given year is determined by the "ripening of the wood" in the previous year. Neither the gardener nor the botanist knows what precisely is meant by the expression "ripening of the wood," but the gardener, at all events, understands that unless the preliminaries to flower-formation are properly attended to by the plant, the harvest is bound to be poor. He recognises also that external conditions, weather, and particularly sunlight, play a decisive part in these preliminary operations.

Despite the several difficulties in the way of scientific experimental investigation of the problem of the influence of external conditions on the form of flowering plants, Professor Klebs has been able to show that the same general laws hold for both higher and lower plants. His experiments have been conducted on various plants, but chiefly on species of *Sempervivum*. The habit of an ordinary member of this genus is to form a rosette

of leaves. From this rosette, short runners are developed in the spring, and, after a time, a fresh rosette is produced at the apex of each runner. The young rosette takes root, separates from the parent plant, and repeats the formation of offsets next year. A rosette, normally, blooms in its third or fourth year, according to the conditions to which it is subjected. When ripe to flower, the stem of the rosette, which till then has remained short, elongates and bears flowers. The fruits ripen and the plant dies.

So much for the normal course of events—the ordinary life's history of a *Sempervivum*: now for the effects produced by change of external conditions.

Klebs has shown that it is possible to compel a plant of this genus to flower in its third year. To secure this, all that is necessary is to cultivate it during its first year in very rich soil, and to grow it during its second year in small pots in poor soil and to keep it relatively dry.

Not only is it possible to make a *Sempervivum* flower at a given time, but it is also possible to prevent one which is ready to blossom from producing flowers and to compel it, as it were, to turn back again to a vegetative state.

The success with which this can be done is determined by the extent to which the preparations for flowering are already advanced. Thus, a plant ripe to flower, that is, one which under ordinary conditions would blossom in the course of a few weeks, may be prevented from doing so if it is grown in a well-manured bed, for example, in a frame the soil of which is heated by hot-water pipes, the soil well watered, and the frame kept close. In these circumstances, in spite of the advanced state of its preparations for flowering, the plant remains throughout the year in a vegetative state. Similarly, if a plant ripe to flower is cultivated in a hothouse from January to March at a temperature of about 88°, though it grows well enough, it remains sterile of flowers.

If, however, similar methods are adopted a little later—in April—they are without effect. The plant has gone too far to turn back, and it blooms in spite of the untoward conditions. By experiments of this kind it is possible to get deeper insight into the nature of the flower-preparation processes. Thus, if, of a series of *Sempervivums*, plants ripe to flower are put, one each day, in darkness at high temperature, and the plants keep under these conditions till the middle of April, even though they are subsequently exposed to normal conditions in the light, they are found to have lost for the year the power of flowering. Such plants may show that they are, as it were, vexed by contradictory order, and though they do not carry out the order commanding them to flower, they go the first step in this direction. The stem elongates as it does when flowering is about to take place, but instead of flowers the elongated stem bears a terminal rosette of leaves. Similarly, if rosettes ripe to flower are brought into a house glazed with blue glass, the plants, unable to assimilate adequately, become vegetative, though they show their readiness



Photograph by G. Forrest

PRIMULA BEESIANA.
GROWING WILD ON THE MOUNTAINS OF YUNNAN, CHINA.

to flower by elongating their stems, which may become 10 to 12 inches long.

If red glass is used instead of blue, the balance in favour of flowering is more marked, for in red light assimilation is more active than in blue, though less than in ordinary light. The plants in red light not only elongate their stems, but also branch and bear a few flowers.

Red light produces also a remarkable effect on the buds which normally give rise to rosette-bearing runners. If a bud is exposed to red light, it continues indefinitely to form a runner and fails to develop a rosette. Then, if placed in ordinary light, its rosette-forming propensities, hitherto suppressed, find full play, and rosettes are produced not only at the apex, but on other parts of the runner, a phenomenon which does not occur in nature.

Just as flowering may be suppressed, although lengthening of the stem may go on, so the lengthening of the stem may be prevented without a checking of flowering. This Klebs effects by planting rosettes ripe to flower at the end of April in rich soil and placing them in a strong light. In these conditions flowers are borne on the tip of the rosette.

The extent to which the form of this plant may be moulded by changing the conditions is almost endless. By growing it at low temperatures, branching of the inflorescence is checked, and a single terminal flower is produced. By taking a plant ripe to flower, growing it in blue light, and then replacing it in ordinary light, every leaf axil may be caused to produce a rosette. By similar interference with the normal course of events, Klebs has been able to induce monstrous forms of flowers like those often observed in plants of other genera, but never before seen in *Sempervivum*. Thus when the flower-stalk of a well-fed *Sempervivum Funkii* was cut off, new flower-branched were produced from the base of the stalk attached to the plant, and these branches bore flowers in which the sepals were transformed into petals, and the petals into stamens, and so on. Thus, in some instances, double flowers were produced, the stamens becoming petaloid. Doubles obtained in this way in the case of *S. acuminatum* have produced interesting progeny. Of 21 plants raised from seed obtained from artificially induced double flowers, four showed abnormalities similar to those of the parent. Thus we have some evidence that abnormalities induced by change of external conditions may be inherited.

It would, however, be premature to discuss this aspect of Professor Klebs' remarkable experiments. The facts which stand out clearly and indisputably from those researches are that each phase in the life history of a plant is determined by definite external conditions, that the conditions which are of most importance are those such as temperature, light, food supply, and moisture, which are concerned in plant-nutrition, and that by taking advantage of the known effects of these conditions it is possible to modify profoundly and at will the form of a plant.

NATIONAL SWEET PEA SOCIETY.—The annual exhibition of this Society for 1912 will be held on July 9 and 10, in the Royal Horticultural Hall, Westminster.

NATIONAL CHRYSANTHEMUM SOCIETY.—The early show of the National Chrysanthemum Society will be held on Wednesday and Thursday next, October 4 and 5, at the Crystal Palace, Sydenham. Particulars may be obtained from the Secretary, Mr. RICHARD A. WITTY, 72, Savernake Road, Gospel Oak, London.

MIDLAND DAFFODIL SOCIETY. The report of this highly-successful society is a record of good work done during the past year. The annual show proved a great success, and the functions held in connection with it, including the opening ceremony and the banquet at which the exhibition judges and visitors were present, were remarkable for the enthusiasm displayed. The new classification by the Royal Horticultural Society has been adopted, and an enlarged schedule has been drawn up in accordance with that system. Among the new classes there is to be a collection of original species and natural hybrids of Daffodils. The statement of accounts shows that the society is in a flourishing condition financially. A few changes have been made on the Executive and Floral Committees, and Mr. HERBERT SMITH has been appointed sole secretary, Mr. JACOB, who has shared the office since the formation of the society, having been appointed chairman of the committee.

FAILURES AMONG GARDENERS, FLORISTS, AND NURSERYMEN IN 1910.—The 28th annual report of the Inspector-general of Bankruptcy for the year ended December 31, 1910, shows that the number of receiving orders and administration orders was 3,880, a decrease of 190 as compared with 1909. The liabilities, as estimated by debtors, amounted to £8,211,678, an increase of £2,407,536 on the year. There were assets as estimated by debtors of £2,867,068 against £2,154,034 in the preceding year: and the estimated loss to creditors is set down at £7,255,989, an increase of £2,169,858 as compared with 1909. In a comparative table attached to the report, the Inspector-general shows the aggregate figures relating to various trades, from which it appears that the number of failures among gardeners, florists and nurserymen in 1906 was 32, in 1907 45, in 1908 and 1909 48, and in 1910 55 failures. The amount of indebtedness in 1910 amounted to £68,144. It will thus be seen that there was an increase of seven in the number of failures in 1910, as compared with 1909; there was also an increase of £35,360 in the total liabilities.

THE GRAIN CROPS. The Board of Agriculture and Fisheries has received the following telegram from the International Agricultural Institute:—"The preliminary statement of the production of Wheat in each of the following countries is:—France, 171,455,000 cwt.; United Kingdom, 34,231,000 cwt.; Hungary (including Croatia and Slavonia), 103,198,000 cwt.; Italy, 102,919,000 cwt.; Russian (73 governments), 339,259,000 cwt.; Canada, 109,594,000 cwt.; United States of America, 352,703,000 cwt.; and Egypt, 20,377,000 cwt. The production of Barley is:—United Kingdom, 27,617,000 cwt.; Hungary, 32,519,000 cwt.; Roumania, 10,823,000 cwt.; Russia, 186,946,000 cwt.; Canada, 22,089,000 cwt.; United States, 61,212,000 cwt.; and Japan, 40,497,000 cwt. The production of Oats is:—United Kingdom, 53,545,000 cwt.; Hungary, 27,501,000 cwt.; Russia, 262,906,000 cwt.; Canada, 111,729,000 cwt.; and United States, 240,637,000 cwt. The production of Rye is:—France, 24,051,000 cwt.; Hungary, 27,156,000 cwt.; Russia, 401,443,000 cwt.; and United States, 15,298,000 cwt. The estimated

production of Maize in Italy is 46,835,000 cwt., Russia 31,879,000 cwt., and United States 1,367,694,000 cwt. The figures now given for those countries for which information has reached the Institute, estimate the production this year as compared with last year as follows:—Wheat 0.5 per cent. above, Barley 0.5 per cent. below, Oats 11.1 per cent. below, Rye 3.6 per cent. below, and Maize 13.4 per cent. below. The estimated production of Rice is:—In Spain 4,081,000 cwt., Italy 9,308,000 cwt., and United States 9,097,000 cwt. The area under Wheat in Chile is placed at 1,482,000 acres; under Oats, 741,000 acres; and the condition of both crops is 20 per cent. above average."

ROSE-LEAF BLOTCH.—This disease, which has been prevalent in the South of England this summer, is characterised by the presence of large purple patches on the upper surface of Rose leaves. It is caused by a parasitic fungus known as *Actinonema rose*. Part of the mycelium is situated on the surface of the leaf, but some of the hyphae penetrate the tissues in order to obtain nourishment from the host. The fruit-bodies of the fungus appear as small dark specks on the discoloured areas of affected leaves. The spores are colourless and once septate. When the disease is present in quantity premature defoliation may occur. Blotched leaves should be collected and burnt.

THE TREATMENT OF SEEDS WITH HYDROGEN PEROXIDE.—Experiments by Mr. E. MİRÖZ (*Ann. Ecol. Nat. Agric. Rennes*, II., 1908) on the effect of hydrogen peroxide on the germination of seeds, indicate that, though this substance is poisonous when used in strong solutions, dilute solutions facilitate germination and stimulate the seedlings to more active development than that exhibited by untreated plants. Mr. MİRÖZ concludes also from his experiments that hydrogen peroxide (1 per cent.) is a useful fungicide in which to steep seed affected by rust or smut. Immersion of infected seed for a quarter of an hour in a 1 per cent. solution of hydrogen-peroxide is stated not only to destroy the fungus spores, but also to protect the seedling from attack. It would be worth while to try the effect of this specific on Hollyhock rust.

THE GENUS HAUYA.—Few horticulturists, probably, have heard of this genus, which is closely allied to *Fuchsia*, and so far as is known, restricted to Mexico and Guatemala, at elevations of about 3,000 to 6,000 feet. Botanically, it differs from *Fuchsia*, among other things, in having a woody capsule and winged seeds, instead of a fleshy berry and small wingless seeds. In habit the species of *Hauya* come nearest, in stature, to *Fuchsia arborescens*, figured in the *Botanical Magazine*, tab. 2620, and in the *Revue Horticole*, 1873, p. 311, with a coloured figure, under the name of *F. syriaca*. The latter name is not inappropriate, inasmuch as the dense panicles of small flowers resemble those of a Lilac. The flowers of *Hauya* more nearly resemble, except in colour, those of an *Oenothera* of medium size. When Mr. W. BOTTING HEMSLEY was compiling the *Botany of the Biologia Centrali-Americana*, in 1890, only one species had been described, but he added a second and a third. Later DONNELL SMITH described two more, and recently, in the *Botanical Gazette*, July, 1911, there are descriptions of five other new ones. Apparently no species of *Hauya* has been in cultivation; yet, judging from dried specimens, they must be very attractive plants when in flower. The blossoms are as large as the largest of the *Fuchsias*, with broad petals, and white or pink in the two cases in which the collectors have noted the colour. They are shrubs or trees, the largest attaining a height of at least 40 feet.

PINUS SYLVESTRIS ON CHALKY SOILS. In the course of his investigations on the distribution of *Pinus sylvestris* in the various countries of Europe, Mr. GOLESKO observes that this species, which is generally "chalk-shy" in Western Europe, becomes almost exclusively calci-phil in Roumania. Professor BONNIER has already made the interesting observation that various species of plants which are chalk-shy in Western Europe become either indifferent to chalk or calci-phil in the east of the continent. He ascribes this change of habit to change of climate. In Eastern Europe the climate becomes more and more continental in type, and hence plants which, in less severe climates, display chalk-shunning proclivities, are driven, in the regions of greater cold, to seek the warm, chalky soils.

PUBLICATIONS RECEIVED. *Publications of the Arnold Arboretum.* No. 4. *Plantae Wilsonianae*, an enumeration of the woody plants collected in Western China for the Arnold Arboretum of Harvard University during the years 1907, 1908, and 1910, by E. H. Wilson; edited by Charles Sprague Sargent. Part I. (Cambridge, U.S.A.: Harvard University Press.)—*Ontario Education Committee: Report on the School Gardens Competitions, 1911.*—*Wheat Growing in Canada, The United States, and the Argentine*, by William P. Rutter. (London, Adam & Charles Black.) Price 3s. 6d.—*The Elements of British Forestry*, by John Nisbet. (London: William Blackwood & Sons.) Price 5s. 6d. net.—*The Journal of the Board of Agriculture.* September, 1911. (London: R. Clay & Sons, Ltd.) Price 4d.—*Leaflets of the Board of Agriculture: Workmen's Compensation Act, 1906—Prospectus of the Day and Evening College for Men and Women.* (The South Western Polytechnic, Manresa Road, Chelsea, S.W.) Price 1d.—*Porto Rico Agricultural Experiment Station.* Circular XLII.: Bee-Keeping in Porto Rico, by W. V. Tower. (San Juan, Porto Rico: The Porto Rico Progress Publishing Co.)—*Porto Rico Agricultural Experiment Station.* Bulletin: Insects Injurious to Citrus Fruits and Methods for Combating Them, by W. V. Tower; Annual Report of the Porto Rico Agricultural Experiment Station for 1910. (Washington, U.S.A.: Government Printing Office.)—*Oregon Agricultural College.* Bulletin: Preliminary First Fighting Studies in the Rogue River Valley, by C. L. Lewis and F. R. Brown. (Corvallis, Oregon: Oregon Agricultural College Press.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

GRAPE DIANA HAMBURG.—I am very anxious to obtain a plant or cutting of a Grape called "Diana Hamburg." It was raised some years ago by Jacob Moore, of New York, but I am unable to find it anywhere in the United States, so that the last hope of rescuing it from oblivion is the chance of a plant being in existence in this country. It is required for a scientific investigation concerning sterility in Grapes. Anyone possessing the variety would greatly oblige by communicating with me direct. W. Wilks, Secy., Royal Horticultural Society, Vincent Square, S.W.

THE EDINBURGH AUTUMN SHOW.—For many years past excursion fares have been granted by the Caledonian Railway Company to visitors of this show, the fare from Dumfries being 4s. with a proportionate reduction from stations nearer Edinburgh. Similar fares were in operation from Carlisle along the main line. The excursion fares were available for the first day of the show, with the option of returning on the second day on payment of about a fourth of the ordinary fare. This year, however, the excursion fares only operated on the second day of the show, and exhibitors were consequently debarred from receiving any advantage; while others who had intended to go on the Wednesday only found,

on reaching the stations, that they would have to pay the ordinary fare. I am informed that the North British Railway Company adopted the same practice, with regard to some of the towns they serve. Were these arrangements in accordance with the understanding between the Railway Companies and the Royal Caledonian Horticultural Society? *A Gallantry Gardener.*

LARGE ENGLISH ELMS.—The remarks on European Elms (see p. 202) remind me of some very large trees of the English Elm, growing in the churchyard at Ross, Herefordshire. I measured more than one that had a circumference of 17 feet at 3 feet from the ground. The story is told that a former rector cut down some of the Elms growing in the churchyard and two Elms sprang up in the chancel of the church, where they reached a height of 7 or 8 feet and then died. Nothing would induce the people of Ross to have the stems removed, and Virginian Creepers are planted to cover them in summer. It is only by a close inspection that it can be seen that the leaves are not the leaves of the trees themselves. There are other large Elms in the neighbourhood, perhaps the largest in England. W. P. R., *Holywell.*

THE WEATHER IN NORTH WALES.—We have had a glorious summer so far as sunshine is concerned, and the crops generally are very good. Apples are a heavy crop and the quality excellent, which should insure their good keeping if well harvested. But the object of my note is to show how short a summer we have had free from frosts. On June 16 all our Marrows, Runner Beans, Begonias, and Dahlias were cut down by 5° of frost, and now again, on the morning of September 21, the same thing has occurred, leaving us only 14 weeks without frost. From a gardener's point of view, this is a serious matter, for what he has gained by the sunshine he has lost by the frosts. J. S. Higgins, *Rug Gardens, Carmarthen, N. Wales.*

A DUTCH GARDEN.—A few days ago I had the pleasure of going over a very fine garden in Holland, namely, that belonging to Baron van Heekeren van Wassenaer. I was very much surprised to see such a garden in Holland. The turf slopes and lawns were perfect in every respect; finer grass could not be seen, and the colour was excellent. The garden contains a very fine lot of standard Oranges in tubs, the finest I have ever seen. They measure about 12 feet through and 12 feet high, and are in excellent condition—good colour, well fruited, and clean. There is also an unusually good collection of clipped Yew and Box trees, the finest specimens, so far as culture is concerned, known to me. They are well looked after, and are a credit to the gardener, Mr. Rabjohn, who was appointed last April as gardener, after having served a considerable time at Welbeck Abbey. H. J. C., *Middlesex.*

ANTHOLYZA PANICULATA. This plant, which is not extensively grown in English gardens for the reason stated by Mr. S. Arnott on p. 218, is, when forced, a useful and beautiful subject for the decoration of the greenhouse or mansion. I have obtained blooms in April, after they had flowered in the south of Europe, and potted them in May, allowing them to grow very slowly. Under this treatment they flowered about the end of November or early in December. The broad, handsome foliage and Montbretia-like flowers are much admired. P.

THE WASP PLAGUE.—Many years ago I used to pay threepence each for queen wasps in the spring, and a shilling each for wasp nests which were destroyed in the summer and autumn. About 20 years ago I made a study of wasps, and watched them for hours in the summer, particularly for the food they brought home to their nests, and I found that through the spring and summer they lived and reared their young on grubs, caterpillars and flies. While there was plenty of this kind of food, they never attempted to touch any kind of fruit, or even honey, although these had been placed near to the entrances of the nests. They go more to the forest trees for their food than to fruit trees and flowers, although I have watched them at work on Apple, Pear, and Plum trees. It is

very difficult to find a wasp's nest in summer, because they are in such a hurry to hunt for food, and I have often been surprised that such strong nests have been so close to where men have been working, and they have not seen them until they have trodden on the hole leading to the nest. Bees are very much like wasps. When honey is plentiful they do not attack fruit. If the bees have stored honey plentifully, they are not so prone to attack fruit; but if the honey has been taken away from them, they must have something in its place. After I became convinced of the great amount of good wasps do, I ceased to kill queen wasps, as I look upon them as friends; but I destroy nests as soon as I find that the wasps are attacking the fruit, although I have never been quite sure that I am justified in doing so. *Veepa.*

CRASSULA COCCINEA.—Although a lovely greenhouse plant, *Crassula coccinea* is, perhaps, seen at its best when 40 to 60 good plants are massed in the flower-garden. I have adopted the same method of winter treatment as you advised E. W. S. on page 232. As soon as the flower-heads are formed, the plants should be placed out-of-doors and protected only when heavy rains or frosts prevail. About the middle of May they may be transferred to their flowering quarters. Tall, straggling specimens should be planted sufficiently deep to allow dwarfier ones being plunged close to them, or even on the top of the pots. This keeps the middle of the bed well furnished. Plants in 5-inch pots should be plunged well below the rim, and these, when taken up in autumn, should be re-potted into 7 and 8-inch pots, and wintered as advised. Cuttings, too, may be inserted late in the autumn, as plenty are then obtainable from the tall plants which have become unsightly. I have planted the same specimens out for three consecutive summers. Cuttings of this plant should be inserted whenever they are obtainable. G. Ferrington, *Clovelly Gardens, Shropshire.*

LAGERSTREEMIA INDICA (see p. 209).—I may inform Mr. Norman that we have at Leonardlee an exceedingly handsome plant of *Lagerstremia indica* some 12 feet high, and in most perfect bloom. It has been in flower since the beginning of August, and it is a perfect mass of bloom at the present time. Many tender plants succeed in Sussex and Kent gardens. W. A. Cook, *Leonardlee Gardens, Sussex.*

PRIMULA BEESIANA, FORREST.

(See fig. 110 and Supplementary Illustration.)

THIS is a new and handsome species from the Lichiang Range, N.W. Yunnan, named in honour of the firm of Messrs. Bees Ltd., Cheshire, for whom it was collected. Though not attaining any great altitude, the highest point it reaches being only 11,000 feet, still the plant has proved perfectly hardy in Britain, flowering and fruiting freely.

It loves moisture, and, like most of the Alpine and sub-Alpine Primulas, it forms huge colonies in its native habitat, often covering many acres, but so far it has only been seen in one district. The situations favoured are moist, gravelly meadows along the margins of small mountain streams, where pure, spring water percolates through the light soil.

Excepting in colour, *P. Beesiana* is almost identical at first sight with *P. Bulleyana*, another recently-introduced species from the same region. It is much the same in height and almost as robust in habit, whilst its habitat is similar in character, although the two species are never found growing together. The flowers are as numerous, both as to number of whorls—5 to 8, and individual blooms, 12 to 16 to the whorl—and the plant possesses the same luxuriant foliage, differing from the above-mentioned species only in having the midrib of the leaf a dull fleshy-red. However, the flowers at once separate them, *P. Bulleyana* having buff-orange-coloured blooms, whilst those of *P. Beesiana* are of a deep

rose-carmine, with the eye bright orange, almost the same colouring as in *P. Poissonii*, *P. angustidens* and *P. Wilsonii*.

Amongst the many beautiful species of *Primula* recently introduced to cultivation from Central and Western China, *P. Beesiana* is sure to take a prominent position, not alone because of its beauty of colouring and robust habit, but owing to its hardness and the ease with which it is propagated.

The average plant attains a height of 2-3 feet, and gives promise of exceeding this in cultivation. The leaves are thin in texture, ovate-lanceolate, apex-rounded or acute, attenuated towards the base into a narrow wing, 12 to 22 centimetres long by 3 to 6 inches in breadth, margin irregularly dentate; under surface slightly hispid, upper surface glabrous. Scapes numerous, two to seven, stout, tall, 2 to 3 feet, towards

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 26.—The fortnightly meeting held on Tuesday last was of more than usual interest. In all sections the exhibits were worthy of remark, but owing to a special vegetable competition, the exhibits in the fruit and vegetable section were the outstanding feature. The FRUIT AND VEGETABLE COMMITTEE recommended three Gold Medals, and they also granted 12 Awards of Merit, six to Raspberries, five to Potatoes and one to a Carrot. Plants and cut flowers again made an exceedingly fine display. Michaelmas Daisies predominating. The FLORAL COMMITTEE recommended a Gold Medal for a group of choice stove and greenhouse plants, and 10 Awards of Merit were awarded to novelties. Orchids were extensively and well shown. Several novelties were forthcoming, and one of

collection of stove and greenhouse ornamental foliage and flowering plants. A row of well-grown *Cocos flexuosus* stretched along the back, and in the middle of this fine group there was a row of very healthy *Nepenthes* bearing fine pitchers; those on *N. mixta* and *N. elegans* were unusually large, whilst those of *N. Mastersiana* were the most highly coloured. The cool-house plants included a fine *Dicksonia antarctica*, *Araucaria elegans*, a single-stemmed *Roupala corcovadensis*, many choice Ferns and several fine pots of *Nerine sarniensis*, and four batches of *Cannas* with large heads of richly-coloured flowers. Standard plants of *Callicarpa purpurea* bearing purple fruits at every node had an uncommon appearance. Of the many choice tropical plants, we especially noted *Bertolonias* in variety, *Eriocnema maculata* (with beautifully-marked leaves), tall, useful plants of *Aralia elegantissima*, *Sphaerocoryne latifolia* (a large handsome foliage plant), besides many *Colerums* and *Begonias* of



FIG. 110.—*PRIMULA BEESIANA* IN ITS NATURAL HABITAT.

(See also Supplementary Illustrations.)

(Photograph by George Forrest.)

the apex densely coated with a white farina, each scape bearing five to eight superposed whorls, with 12 to 16 blooms to each whorl: flowers faintly fragrant. Bracts linear, $1\frac{1}{2}$ to 3 centimetres long; pedicels stout, at the time of flowering about equal to the bracts, later much exceeding them. Calyx campanulate, 5 to 10 millimetres long, divided to the middle, segments lanceolate, striate towards the base, with heavy lines of farina. As the capsule attains maturity, the calyx becomes much broadened and thickened, with the segments almost ovate. Corolla: tube cylindrical or funnel-shaped, 1 to 2 centimetres long; limb 2 centimetres broad, deep rose-carmine, eye orange-yellow. Capsule, large, ovoid, very slightly exceeding the calyx. *George Forrest*

these is illustrated in fig. 111. The ORCHID COMMITTEE granted one First-class Certificate and two Awards of Merit. At the 3 o'clock meeting, in the lecture room, an address on "Salads" was delivered by Mr. H. Senn.

Floral Committee.

Present: Messrs. Hy. Marshall and Henry B. May (Chairmen); and Messrs. Charles T. Druery, J. Dickson, W. Bain, Chas. Dixon, Wm. J. James, W. P. Thomson, George Paul, Chas. E. Pearson, J. T. Bennett-Poe, H. J. Jones, J. Jennings, J. F. McLeod, Wm. Howe, G. Reuthe, Jas. Hudson, W. B. Cranfield, John Green, E. A. Bowles, Herbert J. Cutbush, Edward Mawley, Walter T. Ware, Arthur Turner, E. H. Jenkins, C. R. Fielder, and J. W. Barr.

Messrs. JAMES VEITCH & SONS, LTD., Chelsea, filled the end of the hall with an exceedingly fine

the Rex type, with highly-coloured leaves. (Gold Medal.)

Messrs. H. B. MAY & SONS, Upper Edmonton, again showed a collection of beautiful Ferns. Small plants of *Adiantum ciliatum* and *A. caudatum*, with delicate arched fronds, attracted much attention. Plants of *Selaginella caesia* var. *arborea*, which in spring bears bluish-green foliage, supplied a touch of colour in its autumn bronze. *Selaginella amona*, deep-green fronds with pale-yellow tips, was represented by a fine plant. Other uncommon *Selaginellas* were *S. gracilis*, *S. formosa* (a sport from *S. stolonifera*), a dainty small-foliaged variety, and *S. atroviridis*. Amongst the rarer Ferns we noted *Acrostichum aureum*, with stout fronds, which lose their yellow tint as they mature; *Osmondia palustris* Mayi, more quaint than beautiful; *Blaena insignis*; *Pteris ludens*, which throws up large sterile

fronds, and *Adiantum macrophyllum*, with bright salmon-pink fronds. (Silver Flora Medal.)

Messrs. BAKER & SONS, Covent Garden, London, set up a collection of hardy herbaceous and rock-garden flowers. The greater portion of this attractive collection consisted of cut sprays of Michaelmas Daisies, Golden Rod (*Solidago Golden Wings*), and herbaceous Phloxes. Amongst the first-named there were several brightly-coloured varieties, such as *St. Egwin*, *Miss Southall*, and *Lustre*, which appeared to advantage amongst the more common blue and lighter shades of colour. The boxes contained some very large-flowered forms of *Colchicum speciosum* with both white and purple flowers. *Primula Forbesii*, *P. villosa*, *Cyclamen neapolitanum album*, and *Leucojum autumnale* are all dainty little flowers. (Bronze Banksian Medal.)

Messrs. H. J. JONES, LTD., Ryecroft Nurseries, Lewisham, staged a very fresh and clean-looking selection of Michaelmas Daisies. The covering of white paper added a distinct appearance to this exhibit. Besides several very good unnamed seedling varieties, we noted *Lil. Fardell*, *Ryecroft Pink*, and Mrs. F. J. Raynor as being the best of the pink shades, and Mrs. Matthews and *Decima* as good whites. Of the many blues shown, *Splendens* and *Precocté* were the best. (Silver Banksian Medal.)

Mr. G. REUTHE, Keston, Kent, staged a collection of Alpine and rock plants backed by a double row of cut sprays of Michaelmas Daisies. Amongst the rare Alpines we noted *Calophaea wolgarica*, a dwarf, yellow-flowered leguminous plant, the very rare *Rhododendron intricatum*, *Oxalis lobata*, a creeping species with large golden flowers, and *Wahlenbergia serpyllifolia*. A small group of *Colchicums* included *C. Bonmülleri*, *C. Bivone*, and the very free-flowering *C. Decussatum*.

Mr. JAMES BOX, Lindfield, Sussex, arranged a good collection of Sunflowers and Michaelmas Daisies. Along the front of this group there were several vases of *Aster Amellus* Surprise, the stems being 2 feet high and bearing large, bright flowers. A. A. Charlie and A. Keston were the largest-flowered blue sorts. Mr. R. Pulling was the best white variety. *Aster Golden Spray* would be very attractive if associated with the brightly-coloured varieties, but when placed near the pale blues and the white sorts it has a somewhat dingy appearance. (Silver Banksian Medal.)

On the right of the entrance Messrs. W. CUTBUSH & SON, Highgate, London, arranged a miscellaneous collection of hardy herbaceous plants in an attractive manner. Michaelmas Daisies were present in large masses of distinct colours, and at the back there were *Helenium* and *Solidagos*. The most desirable of the *Asters* were *Star Shower*, *Ultramarine* (a very good blue), *Lustre*, *Perfection* (an abundant, small, white-flowered variety), *Purity* (which has large, white flowers), and the compact *St. Egwin*. A few *Water Lilies* showed that the hardy *Nymphaeas* still produce good flowers, whilst large batches of *Colchicum* betokened the presence of autumn. Besides the large-flowered *Colchicum giganteum* and *C. Bonmülleri*, there were smaller batches of *Crocus zonatus* with pale-blue flowers and the deeper-coloured *C. speciosus*. (Silver-gilt Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, again showed a very fine collection of profusely-flowered Clematises, growing in relatively small pots. On this occasion the plants were arranged on one of the side tables, which brought their flowers better under observation, and enhanced their beauty. In addition to the varieties of *Fuchsia* which we previously noticed as being especially valuable, there were *americana*, *elegans*, *mysticifolia* minor, and *microphylla*, a dainty-flowered, hardy variety. Amongst other shrubby plants, *Caryopteris mastacanthus*, a very desirable, blue-flowered wall plant, and *Polygonum Baldschuanicum*, so useful for covering pergolas, were also well shown. (Bronze Flora Medal.)

Messrs. G. & A. CLARK, LTD., The Nurseries, Dover, showed *Caryopteris* in well-flowered sprays. Other useful hardy plants in the group were *Desmodium pendulifolium*, *Salvia azurea*, *Leonotis Leonurus* (unfortunately not quite hardy), *Tricyrtis hirta nigra* (small purple and white, Lily-like flowers), and the bright red *Zauschneria californica*.

Messrs. ALLWOOD BROS., Haywards Heath, Sussex, staged a small, but exceedingly choice,

selection of Carnations. Excepting two of the new Perpetual Malmaisons Mrs. C. F. Raphael (large, bright flowers) and *Marmion* (white, overlaid with cherry colour), the varieties shown were of the perpetual-flowering type. Besides the splendid "White Wonder," which received an Award of Merit at the previous meeting, there were *Lady Alington* (a fine deep pink flower with a delightful perfume), *May Day* (rose-pink), *Scarlet Glow*, and two new French seedlings with yellow ground.

Carnations with agreeable perfume were exhibited by Messrs. W. WELLS & CO., Merstham, Surrey. The pink *Dorothy Gordon* and the deeper-coloured Mrs. C. W. Ward were attractive, whilst *Princess Charming*, *Bonfire*, *Florida*, and *Brooklyn* (a new rose-pink Carnation with fimbriated petals) were also noteworthy. Various Phloxes, Michaelmas Daisies, and early-flowering Chrysanthemums formed a part of this attractive display. (Bronze Banksian Medal.)

A very bright collection of Verbenas was exhibited from the gardens of the Hon. VICARY GIBBS, Elstree, Herts. (gr. Mr. E. Beckett). Of the many varieties shown in such excellent condition, the brilliant *King of Scarlets*, *Pioneer* (a floriferous plant with flowers of a delicate shade of pale rose), *A. Blondin* (deep rose), *Diana* (purple), *Seville* (blue), *Scarlet White Eye*, and the well-known *Miss Willmott* are a selection. (Silver Flora Medal.)

Messrs. JAMES BACKHOUSE & SONS, LTD., York, brought an exceedingly fine collection of autumn Crocuses. The flowers were very large, and clear and distinct in colour. *Colchicum speciosum* and its variety album were shown in quantity. (Silver Flora Medal.)

Mr. CHAS. TURNER, Slough, sent five fine clumps of *Gynerium* (Pampas Grass) in two varieties. The dwarf variety (*pumilus*) bore a large number of good plumes, but those of the taller *G. Bertinii* were perhaps the more graceful. (Bronze Flora Medal.)

The Misses HOPKINS, Mere Gardens, Shepperton-on-Thames, arranged a small collection of herbaceous and Alpine plants.

The GUILDFORD HARDY PLANT NURSERY COMPANY exhibited a neat collection of cut blooms, including *Delphinium sinense* (with rich blue flowers), *Salvia angustifolia*, *Gaura Lindheimeri*, the pure yellow *Coreopsis verticillata*, and some good spikes of *Funkia grandiflora*.

Messrs. R. VEITCH & SON, Exeter, brought a very interesting selection of *Nerines* bearing flower-spikes of various shades of pink. The individual flowers were larger than those of the *sarniensis* hybrids, and had quite a charming colouring. The plants shown included *Nerine Bowdenii* with long, narrow petals of pink flowers; *N. Exonia* (*Bowdenii* x *Fothergillii*), of which two forms were shown, both having bright-pink flowers, but in one case the flowers are slightly deeper in colour and more erect. Under the name of *Cyrtanthus hybrida*, the cross raised by Sir Trevor Lawrence between *Cyrtanthus sanguinea* and *Valotta purpurea* about 20 years ago, was shown bearing orange-scarlet flowers.

An imposing array of Dahlias came from Messrs. CARTER, PAGE & CO., London Wall, London, which consisted chiefly of Peony-flowered varieties, making a fine blaze of colour. The group contained many good varieties, such as *Lady Saville*, *Wordsworth*, *Turner* and *Vandyck*. (Silver Flora Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, staged a fine collection of Dahlias. Amongst the most recent varieties we noted such excellent sorts as *South Pole* (the best white), Mrs. J. Coisard (a very large rose-coloured variety), *Ethel May* (yellow and buff), and an immense bloom of the Hon. R. Borden (a pale-buff and yellow variety). A good selection of Cactus varieties was shown, as well as many fine single and collarette Dahlias. At one end of this exhibit there was a small collection of Cannas. (Silver Banksian Medal.)

Mr. H. SEALE, Sevenoaks, arranged a group of Dahlias in a very attractive manner. Along the front of the stand collections of miniature Cactus varieties set up in shallow, rustic stands with *Aster* foliage, short sprays of *Populus*, &c., made a good show. (Silver Banksian Medal.)

A representative display of Dahlias was shown by Mr. J. T. WEST, Brentwood, Essex. At one

end a couple of plants of the fine yellow decorative variety *Brentwood Yellow* showed a healthy dwarf habit, in which the blooms could be readily seen. (Silver Banksian Medal.)

Dahlias in good varieties of all sections were shown in splendid character by Messrs. J. CHEAL & SONS, Crawley. There were many very good single-flowered varieties, and of the many Cactus Dahlias the most distinctive were *J. B. Riding* (deep chestnut and yellow), *Lustre* (crimson), *Iolanthe* (chestnut-red), Mrs. F. H. Cook (brick-red), and the pure white *Snowdon*. (Silver-gilt Banksian Medal.)

Large flowers of Peony Dahlias, arranged with various sprays of hardy shrubs, were shown by Messrs. BAKERS, Wolverhampton. (Bronze Flora Medal.)

Dahlias, in which the collarette kinds predominated, were arranged by Mr. JAS. RIDING, Chingford, Essex. The most attractive of this, the newest, phase of the autumn flower, were *Diamond*, *Orphée*, *Crown Princess Charlotte*, *Mme. L. Viger*, and *Union Jack*. (Bronze Banksian Medal.)

Messrs. T. S. WARE, LTD., Feltham, also staged an interesting and attractive assortment of Dahlias in many distinct and richly-coloured varieties. (Bronze Banksian Medal.)

Besides the varieties of *Nymphaea* which received awards, the Earl of WARWICK contributed blooms of *Nymphaea pennsylvanica*, a pale-blue variety; and *N. Maynardii*, a magnificent and fragrant flower, fully 9 inches across and of a lovely pale shade of heliotrope.

AWARDS OF MERIT.

Nymphaea Listeri.—A tropical Water Lily nearer to *N. zanzibariensis* than *N. stellata*. The flowers are of a deep bright blue with darker blue stamens. *N. Listeri* resembles *N. pulcherrima*, but is darker than that variety.

N. Lord Brooke.—This variety also is of the same character as the preceding, differing only in the colour, which is a very pale pink with a slight suffusion of purple; the flower was about 8 inches in diameter. These were shown by the Earl of WARWICK, Easton Lodge, Dunmow, Essex (gr. Mr. H. Lister).

N. stellata rosea.—The name, in this case, indicates the section to which it belongs. The variety has all the characteristics of the type, the flowers standing erect with stems close upon 2 feet in length. The colour is a clear pink, both in the petals and stamens, with the golden centre that is typical of *N. stellata*. This, like the two preceding, is sweetly scented. Shown by LEOPOLD DE ROTHSCHILD, Esq., C.V.O., Gunnersbury House, Acton (gr. Mr. Jas. Hudson).

Nerine Veitchii.—A new species from South Africa with flowers 2½ inches across, having recurved segments. It has the appearance of a pale form of *N. Bowdenii*. Shown by Messrs. R. VEITCH & SON, Exeter.

Rose "Rayon d'Or".—A beautiful deep-yellow bloom with claret colour on the exterior of the petals. Shown by Messrs. PAUL & SON, Cheshunt.

Dahlia Uranus (Cactus).—A large incurved bloom with reddish spots and splashes on a white ground.

D. Golden Wave (Cactus) (see p. 247).

D. Stability (Cactus).—A smaller bloom of a mauve shade of colour, and a very attractive variety. All three were shown by Messrs. JAMES STEDWICK & SONS, ST. LEONARD'S-ON-SEA.

D. "Queen of the Maures" (Single).—A bloom of very good form, the name indicating the colour. Shown by Mrs. M. V. SEALE, Sevenoaks.

D. "Madhi" (see p. 247). Shown by Messrs. J. CHEAL & SONS, Crawley.

D. "Princes de l'ouest" (Collarette). The rich red florets of this flower are set off by a white collarette. Shown by Messrs. DOBBIE & CO., Edinburgh.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), C. H. Curtis, R. G. Thwaites, T. Armstrong, A. A. McBean, W. Cobb, J. Charlesworth, J. Cypher, J. E. Shill, W. P. Bound, W. H. Hatcher, A.

Dye, Gurney Wilson, W. Bolton, John S. Moss, and W. H. White.

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr. Mr. Hudson), showed some finely-grown specimens of the cinnamon-scarlet *Habenaria militaris* with dense heads of brilliant

Caladium argyrites. A grand plant of *Cattleya* Iris with nine flowers.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed a finely-flowered specimen of *Zygopetalum Maxillare* with a dozen spikes (Cultural Commendation), a

Baron BRUNO SCHRÖDER, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed *Odontoglossum Memoria* Baron H. Schröder, a beautiful hybrid of the *O. coruleum* class, the flowers having a white ground colour, and the greater part of the surface covered with bright violet blotches, the reverse side being almost as showy as the face. The plant had a very strong spike, on which only a few of the basal flowers were expanded, and the Committee desired to see it again when fully expanded.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed the beautiful new *Cattleya* Mrs. Frederick Sassoon (see Awards); *C. Gaskelliana* "Delight," a fine white form with a pale purple mark on the lip; and *Cypripedium Dowleri* Westfield variety, white with some minute blackish dots on the petals and dorsal sepal.

R. G. THWAITES, Esq., Chessington, Streatham (gr. J. M. Black), showed *Cattleya Adula* Thwaites' variety, a grand flower with a glowing, purplish-crimson lip; and *Laelia pumila* alba, a charming white flower with a chrome yellow tinge in the tube of the lip.

SAMUEL LARKIN, Esq., The Ridgways, Haslemere (gr. Mr. Hales), was awarded a Silver Banksian Medal for an effective group in which the prominent plants were two very fine specimens of *Vanda violacea*, the pretty *Cattleya Lythamensis* (bicolor *Grossii* × *Gaskelliana*), like a large rosy-mauve *C. Iris*; two *C. Maronii*, and several *C. Iris* and other hybrid *Cattleyas*.

W. WATERS BUTLER, Esq., Edgbaston, Birmingham (gr. Mr. R. H. Jones), showed an interesting seedling between *Cattleya Dowiana aurea* and *C. Hardyana*, the two crossings with *C. aurea* resulting in a form closely approaching *C. Hardyana* *Massaiana*, the lip being very fine, velvety crimson with gold veining at the base, the sepals and petals white veined and marbled with rose colour.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), staged a small group in which the central figure was his *Cattleya* St. Gothard, one of the finest hybrid *Cattleyas*, the flowers being very large and in colour equal to the best *C. Warneri*. The group also included some pretty *Laelio-Cattleyas*, *Sophras*, and other crosses of *Sophranitis grandiflora*.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Banksian Medal for a group of rare Orchids, the most important being their new *Odontoglossum Harwoodii*, The Shrubbery variety, which secured a First-class Certificate (see fig. 111). *Vanda Marguerite* Maron had a spike of ten flowers.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Banksian Medal for a group of hybrid *Cattleyas*, *Laelio-Cattleyas*, &c., including good forms of *C. Iris*, *C. Lord Rothschild*, *C. Ella*, *C. Pittiana*, *Laelio-Cattleya* Walter Gott, L.-C. Hon. Mrs. Ashton, and others. Of species there were *Phalenopsis Sanderiana* and a white form said to be a variety of the same; the singular little *Sievekingia peruviana*, *Catasetum maculatum*, *Vanda Sanderiana*, *Uropedium Lindenii*, and *Miltonia spectabilis* *Morelana*.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Banksian Medal for an effective group, at the back of which were well-flowered *Oncidium varicosum* and *O. oblongatum*. Among the hybrid *Cattleyas* *C. Iris* *Cæsar*, with bronzy sepals and petals and rich crimson lip, represented one of the best forms of this favourite hybrid the influence of the best form of *C. bicolor* *Grossii*, used as one of the parents, being distinctly marked. Forms of *C. Hardyana*, *C. Gaskelliana* *The Princess*, white with a small purple mark on the lip and some *Odontodas* were also noted.

Messrs. JAS. VEITCH & SONS, Chelsea, in their magnificent display of foliage plants, had an effective central group of *Laelio-Cattleya Violetta*, L.-C. *Haroldiana*, and other *Laelio-Cattleyas*; *Cattleya Iris*, *C. Carmen*, *C. Mrs. J. W. Whiteley*, *Brasso-Lælia*, *Cypripediums*, *Phalenopsis* *Emeralda* and hybrid *Cypripediums*.

Messrs. HASSALL & Co., Southgate, were awarded a Silver Banksian Medal for a group in which the forms of *Laelio-Cattleya* Walter Gott were very effective, the Southgate variety having a flower equal to a good *C. Iris* and of a bright rosy-lilac colour.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a small group of very interesting



(Photograph by John Gregory.)

FIG. 111.—*ODONTOGLOSSUM HARWOODII* "THE SHRUBBERY VARIETY."

Awarded R.H.S. First-class Certificate on Tuesday last. (See p. 246.)

flowers well displayed above the bright green, silver-mottled leaves. The plants represented this species better than it has been shown before, and Mr. Hudson was awarded a well-merited Cultural Commendation. The specimens were skilfully arranged with Maidenhair Fern and

specimen of *Epidendrum floribundum* with a spike having ten branches, the remarkable *Epidendrum Laucheanum* (see Awards), and the new hybrid *Laelio-Cattleya* *Phobius* (L.-C. *Phoebe* × *C. Warszewiczii*) with buff-coloured sepals and petals and rose-veined lip.

plants, including *Bulbophyllum coccineum* with four sprays; *Cirrhopetalum ornatum*, *Onchidium maculatum*, the pretty greenish-yellow *Cypripedium Rossetti* Westonbirt variety, *C. Germaine* Opiox, *C. Bingleyense*, *C. Wiertzianum* and *Brasso-Lælia Jessopii*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum Harwoodii "The Strawberry variety" (*maculatum aurifumum* x *Wagnerianum*) (see fig. 111), from Messrs. CHARLES WORTH & Co.—This is a second and much finer form of the remarkable cross shown by Messrs. CHARLES WORTH & Co., on January 31, 1911, which also gained a First-class Certificate. The flowers of the new form are flatly arranged, the broad labellum being a very fine feature. Colour buttercup yellow with blackish purple spotting, the lip having two large blotches, one on each side of the crest and another of the same colour in front.

AWARDS OF MERIT.

Cattleya Mrs. Frederick Sassoon (*Mantini nigricans* x *Dorata aurea*), from FRANKS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins).—In this beautiful hybrid the fine form and rich colour of the best *C. Mantini* are retained, but the flowers are much larger, and the labellum more openly displayed. The sepals and petals are rosy mauve, and the lip ruby-crimson with fine gold veining from the base.

Epidendrum laurifolium, from Sir TREVOR LAWRENCE, Bart. (gr. Mr. W. H. White).—A remarkable, slender species producing pendulous racemes over 2 feet in length, the drooping being closely set with small flowers, the sepals and petals of which are purplish and the lip yellow.

CULTURAL COMMENDATIONS.

To Mr. James Hudson (gr. to LEOPOLD DE ROTHSCHILD, Esq.) for finely-grown *Habenaria militaris*.

To Mr. W. H. White (Orchid grower to Sir TREVOR LAWRENCE, Bart., K.C.V.O.) for a large specimen of *Zygopetalum maxillare*.

Fruit and Vegetable Committee.

Present: A. Bunyard, Esq. (in the Chair); and Messrs. A. H. Pearson, J. Cheal, W. Bates, G. Woodward, A. Dean, E. Perkins, W. Fyfe, W. Pope, J. Gibson, H. Markham, J. Willard, P. C. M. Veitch, P. D. Tuckett, J. Jacques, G. Wythes, W. Poupard, H. S. Rivers, E. Beckett, O. Thomas, W. H. Divers, G. Reynolds, W. Humphreys, and J. Davis.

The question as to whether the Grapes *Directeur Tisserand* and *Alnwick Seedling* were synonymous was again discussed, but no definite conclusion was arrived at. It was recommended that the two Grapes should not be shown together in a collection of distinct varieties. The Committee, however, considered *Directeur Tisserand* the better variety to cultivate, as it was a freer setter than *Alnwick Seedling*.

Messrs. LAXTON BROS., Bedford, showed fruits of a new Plum of rich purple colour named *Plentiful*, a Clingstone variety.

ROGER LEIGH, Esq., Barham Court, Kent (gr. Mr. G. Woodward), showed very choice fruits gathered from wall trees in the open of Peaches *Sea Eagle* and *Nectarine*. A Cultural Commendation was awarded.

A collection of 20 handsome Melons named *Barnett Red Favourite* was exhibited by F. H. COOK, Esq., Guildford (gr. Mr. J. A. Michelson). (Silver Banksian Medal.)

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury Park, Acton (gr. Mr. G. Reynolds), staged fruits of Queen *Fineapple*, white-fleshed Melons, *Peaches Gladstone*, *Lady Palmerston*, *Thomas Rivers*, *Nectarine*, *Princess of Wales*, *Albatross*, *Sea Eagle*, also *Nectarines Pine Apple* and *Albert Victor*. All the fruits were shown in excellent condition. (Silver-gilt Banksian Medal.)

J. A. NIX, Esq., Tilgate House, Crawley (gr. Mr. E. Neal), set up a capital collection of fruit, embracing some 80 dishes, including, on boards, excellent bunches of *Gros Maroc*, *Mrs. Pince's Black Muscat*, *Madresfield Court*, and *Black Alicante* Grapes, all having well-finished berries. There were also Sutton's A1, *Perfection*, *Hero* of Lockinge, and other Melons, boxes of *Transparent*

Gage and *Coe's Golden Drop* Plums, *Peaches Princess of Wales*, *Walburton Admirable*, and *Nectarine*, *Pears Durondeau*, *Beurré Superfin*, *Williams's Bon Chrétien*, and *Uvedale's St. Germain*. Also of Apples *Bramley's Seedling*, *Royal Jubilee*, *Warner's King*, *The Queen*, *New Hawthornden*, *Loddington Seedling*, *Lord Derby*, *Blenheim Pippin*, *Gascoyne's Scarlet Seedling*, *Domino*, *Adams's Pearmain*, *Cox's Orange Pippin*, *Benoni*, *Coronation* and *James Grieve*. (Silver-gilt Knightian Medal.)

A large and superb collection of fruit was shown by Colonel BORTON, Cheneving, Maidstone (gr. Mr. J. Whittle). The collection included 60 dishes and baskets of superb Apples. *Bismarck*, *Mère de Ménage*, *Warner's King*, *Newton Wonder*, *Tyler's Kernel*, *Peasgood's Nonesuch*, *Belle Dubois*, *Lord Derby*, *Emperor Alexander*, *Lane's Prince Albert*, *Lady Henniker*, *Alfriston*, and *Blenheim Pippin* represented cooking varieties; whilst of dessert sorts there were beautiful examples of *Allington Pippin*, *Cox's Orange Pippin*, *Rival*, *King of the Pippins*, *Golden Reinette*, *Melon Apple*, *Mabbott's Pearmain*, *Wealthy*, *Barnack Beauty*, *Charles Ross*, and *James Grieve*. Excellent Pears of the varieties *Doyenné du Comice*, *St. Luke*, *Beurré Fouquet*, and *Durondeau*; and Peaches and other fruits were included in the collection. (Gold Medal.)

Messrs. G. BUNYARD & Co., LTD., Maidstone, staged a collection of fruit from pot trees of wonderfully fine quality. Specimens of *Uvedale's St. Germain* Pears, each weighing 2 lbs., and large fruits of *Catillac* were remarkable. Also of dessert varieties, such as *Duchesse d'Angoulême*, *President d'Osmonville*, *Conference*, *St. Luke*, *Pitmain's Duchess*, and *Marguerite Marillat*, were shown excellently. Of Apples were noticed *Coronation*, *Golden Noble*, *Allington Pippin*, *Rival*, *Peasgood's Nonesuch*, *Cox's Pomona*, *Wealthy*, *Charles Ross*, *James Grieve*, *Mother Apple*, *Houblon*, and *Ribston Pippin*. (Silver-gilt Knightian Medal.)

A. W. SUTTON, Esq., Buckleybry Place, Berks., showed 10 dishes of orchard-grown Apples, including good fruits of *Pea-good's Nonesuch*, *Warner's King*, *Gascoyne's Scarlet Seedling*, *Cox's Pomona*, and *Lord Derby*.

A remarkable collection of ornamental gourds, forming a most attractive exhibit, was shown by E. MOCATTA, Esq., Woburn Place, Adlestree (gr. Mr. Stevenson). In this collection were *Giant Red Etampes*, *Giant Paris*, *Boulogne Gray*, *Spanish Giant*, and other huge, round gourds, the very curious and elegant bottle gourd, specimens of *Long Green Naples*, some 4 feet in length. *Green Hercules* Club, *Turk's Cap*, *Green Hilsbury*, *Yellow and Green Naples*, *Warty and Smooth Orange*, *Striped and White Pear-shaped*, and many others. (Gold Medal.)

Messrs. SUTTON & SONS, Reading, set up one of the most representative collections of vegetables ever exhibited in the Society's hall. The group included very fine Cauliflowers, Celeries, Onions, Cabbages, Leeks, Carrots, Parsnips, Tomatoes, Beets, Lettuces, Potatoes, Kohl Rabi, Marrows, Corn Cobs, fine *Glidstone* Peas, *Best of All Runner Beans*, *Capsicums* and *Salads*. (Gold Medal.)

Messrs. JAMES VEITCH & SONS, LTD., Chelsea, staged an admirable collection of 60 dishes of vegetables, including *Giant Onions*, fine Cauliflowers, superb *Hackwood Park Runner Beans*, *Tomatoes*, *Potatoes*, *Kohl Rabi*, various *Gourds*, and numerous other varieties. (Silver-gilt Banksian Medal.)

Messrs. BARR & SONS, Covent Garden, also exhibited a collection of vegetables, including *Cabbages*, *Kales*, *Beets*, *Carrots*, *Parsnips*, *Onions*, *Potatoes*, *Lettuces*, *Tomatoes*, *Endives*, *Marrows*, and *Corn Cobs*. (Silver Knightian Medal.)

AWARDS OF MERIT.

The following varieties of autumn-fruiting Raspberries, Potatoes, and Carrots were grown under trial at Wisley Gardens, and were recommended for award after inspection by a sub-committee:—

RASPBERRIES.—*Surpasse d'Automne* (bright yellow), *Surpasse Merveille Rouge* (fine red), *Enduring Frühbrenner*, *Perpetual d'Étiève*, these four were sent by Mr. J. BURN CROMER; *Rouge Merveille* (red), sent by Messrs. BUNYARD & Co.; and *Surpasse Pastoff* (red), sent by Mr. W. PFITZER, Stuttgart, Germany.

POTATOS.—*Balgowrie Seedling*, sent by Mr. J. LYLE, Aberdeen; *Scottish Prolific*, from Messrs. DOBBIE & Co., Edinburgh; *Erin's Queen*, from Mr. W. E. SANDS, Hillsborough, Ireland; *Great Scott*, sent by Messrs. R. VEITCH & SONS, Exeter; and *Tremendous*, shown by Messrs. TOO-GOOD & SONS, Southampton.

Carrot Early Gem, a stump-rooted, clean-skinned variety, from Messrs. SUTTON & SONS, Reading.

COMPETITIVE VEGETABLE CLASSES.

The Champion Challenge Cup, offered for the greatest number of points obtained in these classes was won by the Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett).

The Sutton Challenge Cup, offered for the best exhibit of 12 distinct kinds of vegetables was won by the Duke of PORTLAND, Welbeck Abbey, Nottinghamshire (gr. Mr. J. Gibson), who staged a collection of extraordinarily high quality. *New Red Intermediate Carrots* were 2 feet long, of perfect shape, and without a blemish, whilst the *Student Parsnips*, which averaged nearly 3 feet in length, were of equal merit. *Brussels Sprouts* were large and very firm, whilst *Autumn Mammoth Cauliflower* were excellent. Each vegetable in this premier exhibit was practically perfect of its kind. The strongest dishes in the 2nd prize collection, shown by H. V. TATHAM, Esq., Kendall Hall, Elstree (gr. Mr. W. Craiger), were *Leeks*, *Celery*, *Onions* and *Tomatoes*.

The Hon. VICARY GIBBS was the only competitor in the class for nine distinct kinds, and he deservedly received the 1st prize.

W. H. MYERS, Esq., Swanmore Park, Bishop's Waltham (gr. Mr. G. Elwood), arranged the best collection in the class for six kinds of vegetables. In this exhibit *Alisa Craig Onions*, *Autumn Mammoth Cauliflower*, and *Leeks* were exceptionally fine. 2nd, J. KERR, Esq., Loudwater, Rickmansworth (gr. Mr. J. Avery), who showed very fine *Onions* and *Tomatoes*. 3rd, H. KEEP, Esq., Aldermaston.

The best collection of 12 varieties of Potatoes was shown by Mrs. H. DENISON, Little Gaddesden, Berkhamsted (gr. Mr. A. Gentle), the best varieties being *Purple Eyes*, *Duchess of Cornwall*, and *Snowball*. 2nd, A. BASILE, Esq., Woburn Park, Weybridge.

The 1st prize for the smaller collection of Potatoes was won by the Hon. VICARY GIBBS, who showed excellent tubers of Sutton's *Ideal* and *Edgegate Purple*. 2nd, W. H. MYERS, Esq.; 3rd, H. T. TATHAM, Esq.

The Onions shown were immense and solid bulbs of such even quality that we did not envy the judges their task of discriminating between the two leading exhibits. 1st, Hon. VICARY GIBBS; 2nd, the Duke of PORTLAND; 3rd, A. B. H. GOLDSMITH, Esq., Caversham Park, Suffolk (gr. Mr. G. Hatch).

The nine kinds of salads which won the 1st prize in a class for these vegetables for the Hon. VICARY GIBBS were attractively set out, and they presented an appetising appearance. Mounds of *Mustard* and *Cress* rose up from a bed of cool green *Parsley*, on which lay a brace of fine *Cucumbers* and *Beet*, perfect in shape and colour. 2nd, H. T. TATHAM, Esq.

The 1st prize for six kinds of salads was won by W. H. MYERS, Esq. 2nd, B. HENDERSON, Esq., Epping House, Little Berkhamsted (gr. Mr. H. Smith).

A class was provided for nine distinct kinds of vegetables other than those already mentioned. The 1st prize was won by the Hon. VICARY GIBBS, who showed an interesting collection of such kinds as *Capsicum Golden Dawn*, *Long Purple Egg plant*, and very fine *Kohl Rabi*. 2nd, W. H. MYERS, Esq.

SINGLE DISHES.

The remaining 32 classes were for single dishes of the various kinds of vegetables. As was only to have been expected, the entries for Peas were not very numerous. Only two varieties (Mr. Gladstone and Sutton's *Latest of All*) were shown. All the Beans were exceedingly good, and the Cauliflowers were fine and of pure colour. The Celery and Leeks were immense, as also were the Onions. The Beets shown were good, clean roots of rich colour; but in the class which had largest entries, that for *Vegetable Marrows*, the same high quality was not present—many of the Marrows were too old.

ORSETT AND DISTRICT AGRICULTURAL AND HORTICULTURAL.

SEPTEMBER 7.—This society held its 17th annual exhibition on the above date in the grounds of Orsett Hall, the residence of the President, Major Whitmore, in ideal weather. Nineteen classes were provided for hardy fruit.

Mr. T. RIDGELL, Orsett, showed the best dozen dessert Apples of any variety in a grand dish of Worcester Pearmain. Mr. E. NEIGHBOUR followed closely with handsome, highly-coloured fruits of Quarrenden. Major WHITMORE had the best dish of Pears in the variety Pitmaston Duchess. Mr. T. RIDGELL being a close 2nd with Clapp's Favourite.

Mr. E. NEIGHBOUR was awarded the 1st prize in the class for a collection of eight dishes of hardy fruit (two dishes of one kind being permitted). Mr. T. RIDGELL was a good 2nd. Good examples of Apples, Pears, and Plums (including Pond's Seedling, Monarch White, Magnum Bonum and Jefferson), Morello Cherries, Figs, and Peaches were shown in both collections. There were nine exhibits in this class. The class for a collection of four kinds also created a keen competition. Mr. M. DORSETT, North Ockendon, was placed 1st and Mr. McIVER, Orsett, 2nd. Mr. T. RIDGELL had the best four dishes of Pears. Mr. W. SUTTON excelled in the class for four dishes of Plums, staging Pond's Seedling, Jefferson, Belgian Purple, and Sultan. Mr. E. NEIGHBOUR was 1st in the Grape classes, showing medium-sized bunches of Black Hamburg.

In the special classes for Apples grand specimens were staged. The class for the best half-sieve of any one variety of Apple packed ready for market excited a keen competition. Mr. T. RIDGELL, Orsett, was awarded the 1st prize, showing Worcester Pearmain; 2nd, Mr. W. SUTTON, Orsett, with the same variety.

Messrs. M. DORSETT, J. THORP, and E. NEIGHBOUR were the most successful exhibitors in the classes for plants in pots, and Messrs. D. McIVER, J. JESSOP, J. BROUGHTON, and E. NEIGHBOUR were winners of 1st prizes in the cut flower classes. Mr. NEIGHBOUR and Mr. W. CHILD were 1st for collections of nine kinds and six kinds of vegetables respectively in the order in which their names are given.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

SEPTEMBER 14.—Committee present: Z. A. Ward, Esq. (in the Chair); and Messrs. R. Ashworth, W. R. Lee, C. Parker, H. Thorp, J. C. Cowan, J. Cypher, W. Holmes, A. J. Keeling, F. K. Sander, and H. Arthur (secretary).

Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), was awarded a Silver-gilt Medal for a fine specimen of *Cattleya* *Thurgoodiana* var. *alba*, the most prominent amongst which was a new form named Ward's variety, to which a First-class Certificate was awarded. A Cultural Certificate and Bronze Medal were granted to the gardener for the excellent condition of the *Cattleyas*.

Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), staged a group of *Cattleyas* and *Cypripediums*, for which a Silver Medal was awarded. *Cattleya Gaskelliana* *alba*, C. Dominium longelyse, C. *Iris sanguineum*, *Cypripedium Rossetii*, C. *chortoni*, and *Lycaste Skinneri* *alba* were all very good.

W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse), was awarded a Silver Medal for a group of choice plants, including *Cattleya Thurgoodiana* var. *Nobilior*, for which a First-class Certificate was awarded; C. *Gaskelliana* *alba*, C. Mrs. John Leeman (*aurea* × *Digbyana*), and C. *Maquida*.

Dr. HODGKINSON, Wilmslow (gr. Mr. Moore), staged an interesting plant of *Laelia tenejalis* (*granidis tenebrosa* × *L. majalis*).

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), staged an unnamed variety of *Catasetum macrocarpum*; the plant received an Award of Merit.

J. McCARTNEY, Esq., Bolton (gr. Mr. Holmes), staged *L.-C. Rubens* var. *magnifica* (Award of Merit), a good variety.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver Medal for a group containing *Cypripedium triumphans*, C. *Niobe superbum*, C. *Milo*, C. *Leonea*, C. *Fairiesium*, *Miltoia specta-*

bilis *Moreliana*, a dark-flowered variety; *Vanda cœrulea*, and *Odontoglossum grande*.

Messrs. KEELING & SONS, Bradford, staged a group to which a Bronze Medal was awarded. *Cypripediums* predominated, the best being C. *Kimballianum*, C. *Lord Derby*, C. *Rolfæ superbum*, and C. *Charlesworthii*.

Messrs. HASSALL & Co. staged a few plants of merit, including *Cattleya iridescens* (*bicolor* × *Eldorado*) var. *Cuprea*, an unnamed hybrid, (*Harrisonæ* × *Iris*), *Lælio-Cattleya Walteri* *Gott*, and *Cypripedium Harefieldi* Hall × *Hitchinsiae*.

Mr. Ed. V. Low, Haywards Heath, staged *Cattleya Gaskelliana* var. *Phyllis*, *Cattleya Adula*, *Cypripedium mirabilis*, and C. *Amboyne*.

Mr. W. SHACKLETON, Great Horton, Bradford, staged a plant of *Cypripedium Lord Ossulton* Chillingham variety.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Thurgoodiana var. *alba*, A splendid flower of good form and substance.

Dendrobium Phalaenopsis *Chelleana*, A large, full flower. Both shown by W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse).

Cattleya L. Harrisonæ × *Iris*, Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby).—One of the finest forms of the type, the sepals and petals being very brilliantly coloured and with an intense colour in the lip.

AWARDS OF MERIT.

Lælio-Cattleya Maquida (*Geo. Woodhams* × *Lælio-Betheliana*), shown by W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse).

Cattleya Adula var. *Phyllis*, C. L. "St. Giles," and C. "No. 3," all from Z. A. WARD, Esq. (gr. Mr. Weatherby).

Laelia tenejalis (*L. grandis tenebrosa* × *L. majalis*), from Dr. HODGKINSON, Wilmslow (gr. Mr. Moore).

Catasetum macrocarpum, from R. ASHWORTH, Esq. (gr. Mr. Gilden).

Lælio-Cattleya Rubens var. *magnifica*, from J. McCARTNEY, Esq., Bolton (gr. Mr. Holmes).

Cypripedium iridescens var. *Cuprea* (*C. bicolor* × *C. Eldorado*), from Messrs. HASSALL & Co., Southgate, and *Miltoia Cochlingiana* var. *alba*, from Messrs. A. J. KEELING & SONS, Bradford.

NORTH OF ENGLAND HORTICULTURAL.

SEPTEMBER 20.—The monthly meeting of the above society was held at the Emmanuel Hall, Leeds, on this date. Numerous exhibits were staged in the plant and floral section, and the Committee awarded the following Medals:—

PLANTS AND FLOWERS.

The PLANT AND FLORAL COMMITTEE made the following Awards of Medals:—

Large Silver-gilt Medal to Messrs. GIBSON & Co., Leeming Bar, Bedale, for hardy flowers.

Large Silver Medal to Messrs. HARRISON & SON, Bedale, for hardy flowers.

Silver Medals to Messrs. E. J. BATCHELOR & SON, Harrogate, for herbaceous flowers, annuals, and roses; Messrs. SEAGRAVES & Co., Sheffield, for border Chrysanthemums; and Messrs. YOUNG & Co., Cheltenham, for Carnations.

Large Bronze Medal to Messrs. J. BACKHOUSE & Co., York, for hardy flowers, with a central group of *Colchicum speciosum*.

Bronze Medal to Messrs. W. J. JARMAN, Ripon, for Peony-flowered Dahlias; Messrs. CLIBRAN & SON, Altrincham, for hardy Chrysanthemums; and Messrs. S. BROADHEAD & SON, Huddersfield, for hardy flowers, including Alpines.

ORCHIDS.

The ORCHID COMMITTEE awarded the following Medals to groups of Orchids:—

Silver Medals to Mr. F. V. LOW, Haywards Heath, Sussex; and Messrs. MANSELL & HATCHER, Rawdon.

Large Bronze Medal to G. W. JESSOP, Esq., Rawdon (gr. J. Wilkinson).

FRUIT AND VEGETABLES.

The FRUIT AND VEGETABLE COMMITTEE made the following Awards:—

Large Gold Medal to Messrs. SUTTON & SONS, Reading, for vegetables.

Large Silver Medal to Mr. W. LAWRENSEN, Yarm-on-Tees, for Apples and Pears.

Large Bronze Medal to the Hon. Mrs. G. W. WINN, Walton Hall, Wakefield, for a collection of Apples.

Silver Medals to Miss MAXWELL STUART, Tadcaster (gr. Mr. J. Haynes), for Apples.

AWARDS.

FIRST-CLASS DIPLOMA.

Colchicum speciosum album, shown by Messrs. J. BACKHOUSE & SON, York.

SECOND-CLASS DIPLOMA.

Cattleya Adula, shown by Mr. E. V. LOW, Haywards Heath.

NATIONAL DAHLIA.

SEPTEMBER 20, 21. The Metropolitan show of the National Dahlia Society, being the second this season, was held in the Royal Botanic Society's Gardens on these dates. The blooms exhibited were of excellent quality, and the show was one of the finest exhibitions of Dahlias, embracing all sections, that has been seen during the present year.

In the class for three vases of Cactus Dahlias, distinct, put into commerce for the first time in 1909-10, Mrs. M. V. SEALE, Sevenoaks, was awarded the 1st prize, for Mary Purrier, Prima Donna, and Johannesburg. The same firm won the 1st prize for Pompon Cactus varieties.

Mr. S. MORTIMER, Kewledge, Farnham, secured the leading place for 24 show and fancy Dahlias, whilst Messrs. J. CHEAL & SONS, Caneley, excelled in the class for 12 blooms.

In the principal class for Cactus-flowered varieties, Messrs. J. STREDWICK & SON, St. Leonards, again won the 1st prize, with beautiful blooms of Indomitable, Olympic, Orion, Elite, Golden Wave, Uranus, and similar varieties. 2nd, Messrs. J. CHEAL & SONS.

Mrs. M. V. SEALE was awarded the 1st prize for 24 Cactus blooms, distinct, arranged on boards, and Mr. CHARLES TURNER, Slough, was awarded the 1st prize for 12 varieties, distinct. Mrs. M. V. SEALE won the 1st prize in the class for 12 varieties of Pompons, in bunches of 10 blooms each, and Messrs. J. CHEAL & SONS gained a similar success for 12 single varieties.

Mr. CHARLES TURNER was awarded the 1st prize for six vases of Peony-flowered Dahlias, and also for six varieties of giant decorative varieties, six blooms of each variety, arranged in vases.

AMATEURS' CLASSES.

For nine Cactus varieties, in bunches of three blooms each, Mr. F. W. FELLOWS, The Lane House, King's Walden, obtained the 1st prize, the Rev. ARTHUR BRIDGE, Worth Rectory, and Mr. F. GRINSTEAD being placed 2nd and 3rd respectively.

In the class for 12 blooms of Cactus-flowered varieties, distinct, shown on boards, there was a keen competition. Mr. H. PEERMAN, Nantwich, was placed 1st; the Rev. G. TWENTYMAN, New Barnet (gr. Mr. W. Lockyer), 2nd; and Rev. ARTHUR BRIDGE, 3rd.

Mr. CHARLES LUCKIN, Thakeham, excelled in the class for 12 blooms in four varieties.

Mr. A. P. IRONSIDES, Chippenham, showed the best Pompon varieties; and the Rev. ARTHUR BRIDGE was placed 1st for single-flowered varieties.

AWARDS.

FIRST-CLASS CERTIFICATES were awarded to the following varieties:—

Golden Wave (Cactus).—A pure yellow variety.

Frederick Wenham (Cactus).—The colour of this variety is apricot, with a yellow centre.

Sunlight (garden Cactus).—A yellow variety, tinted with apricot. These three were shown by Messrs. J. STREDWICK & SON.

Florie Wells (Cactus).—The colour is rich red, shaded with violet. Shown by Mr. H. SHOOTMITH.

Mahdi (single).—A deep maroon variety. Shown by Messrs. J. CHEAL & SONS.

Diadem (collar).—A deep rose-pink flower, with a white collar.

Leitstern (collarette).—The florets are deep red, set off by a white collar. These last two were shown by Messrs. DOBBIE & Co.

NON-COMPETITIVE EXHIBITS.

A fine stand of Dahlias, embracing all sections of the flowers, and Roses in variety, were shown by Messrs. HOBBIES, LTD., Dereham. (Large Gold Medal.)

Gold Medals were also awarded to Mr. J. T. WEST, Brentwood, Messrs. J. BURRELL & Co., Cambridge, and Messrs. T. S. WARE, LTD., Feltham, for exhibits of Dahlias.

Silver-gilt Medals were awarded to Messrs. DOBBIE & Co., Edinburgh, for a collection of collarette Dahlias, many of which were quite new; and to Messrs. JAMES CARTER & Co., Forest Hill, for Peony-flowered and other Dahlias. Mr. CHARLES TURNER, Slough, and Mr. J. B. RIDING, Chingford, were both awarded Silver Medals.

Messrs. S. SPOONER & SONS, Hounslow, staged a collection of Apples, for which a Gold Medal was awarded.

Obituary.

ALEXANDER M. LAREN. We regret to record the recent death of Mr. Alexander M'Laren, gardener to the Duke of Fife, at Mar Lodge, Braemar, Aberdeenshire. Mr. M'Laren, who was a native of Ardghe, was 73 years of age. He had been gardener at Mar Lodge for about 50 years. He is survived by a widow and six children.

EDWIN MIZEN.—This well-known market gardener died suddenly on the 9th inst. at Eastfields Farm, Mitcham. Mr. Mizen was born at Ashdown, Essex, and commenced business as a market gardener in Battersea about 50 years ago. He was eminently qualified for the work he had taken up, and success followed his efforts, with the result that 44 years ago he removed to Mitcham, where he conducted a large market garden. His principal indoor crops were Tomatoes and Mushrooms, but out-of-doors the crops were of a general character. Mr. Mizen was actively engaged in his business up to the time of his death, but his energies had been somewhat impaired by an accident which occurred last spring. His sudden death was due to heart failure.

TREES AND SHRUBS.

QUERCUS VELUTINA.

So far as foliage is concerned, this is one of the most ornamental of the American Oaks, the dark green leaves being large and handsome, ranging sometimes up to 10 inches in length and 6 inches in width, with a few well defined lobes. The bark of the younger branches is yellow or orange coloured, from which peculiarity the common name of Yellow Bark Oak is derived. The species is described in Sargent's *Silva of North America*, being found growing wild in rocky or sandy soil from Maine to Ontario, and as far south as Florida and Texas. Under normal conditions the tree attains to a height of from 60 feet to 70 feet, with a trunk $\frac{3}{4}$ feet in diameter, and there would appear to be no reason why its maximum dimensions should not be attained in gardens in this country. Planted as a specimen tree on a lawn or in a park, it cannot fail to attract attention, for its distinct foliage is at once noticeable amongst other trees. The variety *rubrifolia*, which is known as the "Champion Oak," has even larger foliage than the type, and the growth is of a very vigorous character. Acorns provide the most suitable means of raising a stock of plants of *Q. velutina*, and there should be no difficulty in obtaining a supply from the American nurserymen. W. Duffman.

GARDENING APPOINTMENTS.

[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]

Mr. THOMAS YOUNG, for the past 8 years Superintendent of the gardens of the Crichton Royal Institution, and previously Gardener at Kinloch Castle, Rum, and Hartington, Jedburgh, is now collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]

Mr. ALEXANDER MACDONALD, for the past 24 years Foreman in the gardens of Lord ELPINSTONE, Carberry Tower, Musselburgh, as Gardener to Lord CLINTON, Stevenson Gardens, Torrington, Devonshire.

Mr. J. S. HIGGINS, for the past 84 years Gardener at Rug Garden, Cogen, Wales, is Gardener to the Hon. F. G. WYNN, Glynllifon Park, Carnarvon, N. Wales.

Mr. E. M. MUTLOW, for the past 8 years Gardener to A. G. HAYMAN, Esq., Hapshof House, Frome, Somersetshire, as Gardener to F. H. FAWKES, Esq., Farley Hall, Olney, Yorks. (Thanks for 1s. 6d. received for the R.G.O.F. box.—Eds.)

Mr. T. WHITING, for the past 2 years Gardener to the late Mrs. MILLER, Shotover Park, Wheatley, Oxfordshire, as Gardener to Colonel A. D. MILLER, D.S.O., at the same place.

Mr. JOHN M. ANNAND, Foreman at Brucklay Castle Gardens, Aberdeenshire, as Gardener to BRODIE, Esq., Brodie Castle, Forres.

Mr. T. HILL, for the past 94 years Gardener at Woolton House, Newbury, as Gardener to the Rev. CHARLES F. TOWNLEY, Fulbourne Manor, Cambridge.

Mr. W. EDGERTON, for the past 16 months Foreman in the gardens at Whitley Abbey, Coventry, as Gardener to A. H. HEATH, Esq., Street Ashton Lodge, Sireston-under-Fosse, Lutterworth.

Mr. A. C. PARSONS, recently Gardener to the late Mrs. HOLT, Waratah, Chislehurst, Kent, as Gardener to HUGH AGLAND TROVET, Esq., Hunstant Court, Bampton, North Devon.

Mr. W. NICOLLS, for the past 11 years Gardener to C. SHEPHERD-CROSS, Esq., The Oaklands, Preston Brook, Cheshire, as Gardener and Bailiff at The Training College, Warrington.

Mr. E. SANDERS, for the past 4 years Gardener to Major A. F. WATT, Hemingford Grey, St. Ives, Huntingdonshire, as Gardener to E. F. MEYERICK JONES, Esq., Home Place, Holf, Norfolk.

Mr. A. BURNFOOT, for the past 34 years Foreman at HONEY, Twyford, Berkshire, as Gardener to R. MILLS, Esq., Stevenson Manor, Whitchurch, Hampshire.

Mr. W. H. HAWTHORN, for the past 11 years General Foreman in the gardens at Fresham Hill, Farnham, Surrey, as Gardener to E. F. CHARRINGTON, Esq., Broadacres, West Byfleet, Surrey.

Mr. J. B. LOWE, for the past 8 years Gardener to GEOFFREY LUBBOCK, Esq., Broadacres, West Byfleet, Surrey, as Gardener to the same gentleman at Greenhill, Sutton York, Warrminster, Wilts. (Thanks for 6s. sent for R.G.O.F. box.—Eds.)

Mr. R. J. LOVE, for the past 12 months Gardener and Orchid Grower to A. G. GROVES, Esq., Horfield Lodge, Horfield, Bristol, as Gardener to Dr. HENSON, Elmstet Hall, Wedmore, Somersetshire.

Mr. HARRY SHINNE, for the past 24 years Foreman in the Pleasure Grounds at Shendish, King's Langley, Hertfordshire, as Gardener to KENNETH WALKER, Esq., Tegfynydd, Llanfalfel, Carmarthenshire, South Wales.

Mr. F. LAILEY, for the past 6 years at Elvetham Hall, as Gardener to Miss R. A. BURRELL, Fairthorn Manor, Boleby, Lancs.

Mr. C. HOBBS, for the past 7 years Gardener to G. F. S. WARNE, Esq., Frobury Manor, Abinger, as Gardener to G. P. DOOLITTLE, Esq., Merlebank, Caterham Valley.

DEBATING SOCIETIES.

GUILDFORD AND DISTRICT GARDENERS.—A meeting of the above association was held at the Workmen's Hall on the 19th inst.; Mr. G. Johnson presided. Mr. G. Carpenter, of West Hall Gardens, Byfleet, read a paper on "Outdoor Peach Culture." Mr. Nichols exhibited a collection of Apples, and Mr. Edwards two dishes of Peas.

CROYDON & DISTRICT HORTICULTURAL.—A well-attended meeting of this society was held at the Sunflower Temperance Hotel, Croydon, on the 19th inst., when a lecture was given by Mr. D. B. Crane on the subject of "Vegetable Gardening." The seeds may be sown during July in a cold frame, and the seedlings should be allowed to grow sturdy until their flowering stage is reached. To get a stock which shall be true to colour and type cuttings are taken from the base of the plants, as stem cuttings rarely succeed. Spring is the best time for taking the cuttings, and they should be inserted in frames facing south so as to get as much sunshine as possible. July is also a good month to take cuttings, using a cold frame sheltered from the sun; by the first or second week in October they may be planted out.

READING GARDENERS.—The opening meeting of the autumn season of this association took place in the Abbey Hall on the 18th inst.; the president, Mr. F. B. Parritt, occupied the chair, and there was a very large attendance. The successful candidates at the examination held at the conclusion of the evening classes consisted of under the auspices of the Reading University College last winter and spring were presented with certificates. Mr.

Alexander Dean gave a lecture on "Floral Ideals," in which he explained the meaning of the term "floral flowers," as generally understood, and proceeded to give a masterly and exhaustive address exemplifying the long and patient efforts of the horticulturists 50 or 60 years ago in the production in what they considered to be perfection of form and colour in various flowers. Their ideals demanded perfect symmetry in appearance was perfect and regular in colour. Modern ideas of artistic beauty tend in the opposite direction; indeed, the lecturer remarked, the shaggy and uneven Cactus and other Dahlias which were now popular would have appeared but little less grotesque in contemporaries, and he (Mr. Dean) confessed that his sympathies were all with the old notions, and contended that many beautiful ideals of the florist of 60 or 70 years ago had been modified in the wrong direction. The present generation aimed at size, and to secure this florists were prepared to sacrifice not only form but perfume. As types of successful culture and selection he instanced the *Auricula*, gold-laced *Polyanthus*, *Carnations*, *Hollyhock*, *Dahlia*, *Fansy*, *Viola*, *Pentstemon*, *Primula*, *Sweet Pea* and *Rose*, fully explaining the points aimed at by the florists in the production of perfect blooms of each kind.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending September 23, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather continued fine and dry in nearly all districts until about the middle of the week, when a decided change occurred. Rain fell very freely on Wednesday and Wednesday night, and again on Saturday, but in the interval the conditions over England were mostly fair. Thunderstorms occurred in many parts of the country on Wednesday and Thursday.

The temperature was below the average in all districts, a condition of things that had not prevailed since the middle of June. In the Channel, the temperature was slightly, but in the Midland Counties and England S.W. it amounted to more than 2° below, and in England S.E. to 3° below. The highest readings occurred mostly either on the 19th or 20th, but as a rule the thermometer failed to reach 70°, and in Scotland W. and England N.W. it did not touch 65°. The lowest readings were observed in the latter half of the week when the thermometer in the open sank below the freezing point in many parts of Great Britain, and touched 24° in Scotland E. (at West Linton). On the surface of the grass the lowest temperatures reported were 18° at Llanganau Marsh Wells and 22° at Balmoral, Hereford and Marlborough.

The mean temperature of the sea was again higher than during the corresponding week of last year, the difference being rather large around the east and south-east coasts of England. The means for the week ranged from nearly 63° at Eastbourne and the Shipwash and 61° at Newquay to between 51° and 52° off the North of Scotland.

The rainfall was in excess of the average in all districts excepting Scotland E. and W.—largely so in England S.W. and the English Channel. The heaviest daily amounts occurred on the 19th and 20th; on the former date 1.1 inch was recorded at Glencarrow and 1.2 inch at Ayr.

The bright sunshine exceeded the normal in the eastern and central parts of Great Britain, as well as in the north of Ireland, but was deficient in the western districts generally. The percentage of the possible amount ranged from 58 in England S.W. and 56 in England E. to 22 in England N.W. and to 19 in Scotland N.

THE WEATHER IN WEST HERTS.

Week ending September 27.

The thirteenth dry week in succession.—During the daytime the temperature has been as a rule rather above the average, while on the other hand the nights were mostly cold, and some very cold for the time of year. The exposed thermometer on two nights registered respectively 3° and 3° of frost. The ground is, at the present time, 2° warmer at 2 feet deep, and 3° warmer at 1 foot deep, than in seasonable. Rain fell on three days, but to the total depth of only about a quarter of an inch. There was no percolation through the turfed or bare-soil gauge; indeed, it is now 12 weeks since rainwater at all has been able to enter either of these gauges. The sun shone on an average for 63 hours a day, or for 24 hours a day longer than is usual at the same period in September. Calms and light airs have, as a rule, prevailed during the week. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by as much as 15 per cent. E.M., Berkhamsted, September 27, 1911.

CATALOGUES RECEIVED.

BROWN & SONS, 81, Bridge Street, Bristol.—Bulbs.
THOMAS RIVERS & SONS, Sawbridgeworth.—Fruit Trees, Roses, and Peaches.
H. KAMMILL & SONS, Swanley, Kent.—General List of Nursery Stock.
WM. CUTBUSH & SON, Highgate Nurseries, London.—Strawberries.
KARL THERKILDSEN, Avenue Road, Old Southgate, London—Roses.

FOREIGN.

GREEN & BOURG, Luxembourg.—Roses.
LEON BERNAR, Erfurt, Germany.—Seeds.
HARVEY & SCHMIDT, Erfurt, Germany.—Seeds of New Flowers.
L. SPATH, Berlin, Germany.—Bulbs, &c.
ANT. ROZEE & SON, Dordrecht, Haarlem, Holland.—Dutch and Cape Bulbs.
Mertens & Co., Cross Lane, St. Mary-at-Land, London.
W. SMERN & SON, Backenhausen Nurseries, Delden, Holland.—Roses, Aspidistras, and Rhododendrons. (Trade list.)

MARKETS.

COVENT GARDEN, September 27.

(We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Ed.)

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Aromas (see Richard's)	3 0	—	Marguerite, per doz. bunches:	1 6	2 0
Aster, per doz. bunches:	5 0	7 0	Orchids, Cattleya, per doz.	12 0	15 0
—pink	3 0	3 0	—Cattleya Harrisonae, per doz.	8 0	9 0
—apple	6 0	8 0	—Odontoglossum crispum	3 0	4 0
Azalea, per dozen bunches	—	6 0	Pellargonium, per dozen bunches:	5 0	6 0
Carnations, p. doz. blooms, best	1 6	2 0	—Double Scarlet	5 0	6 0
American varieties	—	1 6	—Carola, extra large	8 0	9 0
—summer, per doz. blooms	12 0	15 0	Physalis, per doz. bunches	8 0	10 0
—Carola, extra large	2 0	3 0	Richardia, per doz. blooms	3 0	—
Chrysanthemum sprays, all colours, per doz. bunches	5 0	8 0	Roses, 12 blooms	1 0	2 0
—blooms p. doz.	1 6	2 0	—Bridal's maid	1 0	2 0
—Yellow	1 3	3 0	—Frau Karl	1 0	2 0
—Bronze	1 3	3 0	—Cherry	1 0	2 0
Cornflowers, p. doz. bunches	1 6	2 0	—Miss Chatterley	1 0	2 0
Gaillardia, per doz. bunches	1 6	2 0	—Madresfield	1 0	2 0
—Garden nasturtium	1 6	2 0	—Black Alcornoque	1 0	2 0
Lapageria, white, per doz. blooms	2 6	3 0	—Gros Colman	1 0	2 0
—long, per doz.	10 0	12 0	—Gros Maroc	1 0	2 0
—short, per doz.	3 0	3 0	—Lisbon Sweet	8 0	9 0
—lancifolium	1 6	2 0	—Black Cluster	7 0	8 0
—adansoni	1 6	2 0	—Muscat of Alex.	1 0	2 0
—rubrum, long, per doz. blooms	1 6	2 0	—Almeria, p. bri.	1 0	2 0
—short, per doz. blooms	9 0	1 0	—ish, 1/2 sieve	8 0	12 0
—extra special	18 0	20 0	—Lisbon Sweet	8 0	9 0
—extra	10 0	12 0	—Black Cluster	7 0	8 0
—ordinary	8 0	10 0	—Muscat of Alex.	1 0	2 0
—Maidenhair	3 0	—	—Almeria, p. bri.	1 0	2 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Adiantum, best, per doz. bunches	4 0	5 0	Croton foliage, per dozen bunches	12 0	13 0
Agrostis, per doz. bunches	2 0	3 0	Cycas leaves, artificial, per doz.	3 0	12 0
Asparagus plumosus, long trail, per doz. bunches	1 6	2 0	Eulalia japonica, per bunch	1 0	1 0
—medium, doz. bunches	12 0	15 0	Moss, per gross	4 0	—
—Yorket	10 0	12 0	Myrica, (English), small-leaved	1 0	—
Ceanothus foliage, doz. bunches	3 0	4 0	Smlax, per bunch of 6 trails	1 3	1 6

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0	Ferns, choicer sorts, per doz.	8 0	12 0
Araucaria excelsa, per dozen	18 0	21 0	—H. 32, per doz.	10 0	15 0
Asparagus plumosus, per dozen	10 0	12 0	Ficus elastica, per doz.	9 0	12 0
—Sprengeri	8 0	9 0	Fuchsia, per doz.	6 0	—
—green, p. doz.	21 0	30 0	Geonoma gracilis, per dozen	6 0	—
—variegated	30 0	40 0	Hydrangea, pink, 48s, per doz.	9 0	10 0
Asters, in pots, per doz.	4 0	6 0	—paniculata, per doz.	18 0	21 0
—Yellow, p. doz.	10 0	15 0	Kentia, per dozen	6 0	—
—Bronze, p. doz.	8 0	10 0	—Posteriora, per doz.	3 0	—
Coccoloba Weddellii, per dozen	6 0	6 0	Lantana borbonica, per dozen	12 0	15 0
Croton, per dozen	18 0	21 0	Lilium, per doz.	12 0	15 0
Cypripedium, per doz.	6 0	6 0	—lancifolium rubrum in pots, per dozen	15 0	18 0
—lanceolatum	4 0	6 0	—lanceolatum alba	15 0	18 0
Dracena, green, per dozen	10 0	12 0	Marguerite, white, per dozen	6 0	8 0
Eriogonum, per doz.	12 0	15 0	Mignonette, per doz.	3 0	6 0
—alba, p. doz.	15 0	18 0	Pandanus Veitchii, per dozen	30 0	45 0
Fern, in pots, per doz.	8 0	12 0	Pelargonium, per dozen:	—	—
—in small and large pots	12 0	20 0	—Zinnia	4 0	6 0
—in 48s, per doz.	5 0	8 0	Phoenix typicala, each	2 6	2 0
			Spiraea (pink)	10 0	12 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Apples, dessert, per tray of 3 dozen from 3	2 0	4 0	Lemons (Naples), per case	18 0	32 0
—household, per bushel	3 6	6 0	Mangoes, per case	5 0	—
—Cooking p. bbl.	3 0	4 0	Melons:	4 0	6 0
—Nova Scotian, per barrel	11 0	14 0	—(English)	0 6	2 6
—Wentworth, per case	11 0	15 0	—French Cantaloupes	1 0	3 0
Bananas, bunch:	—	—	—Spanish, per case	8 0	10 0
—Doubles	9 0	10 0	—Bicolor, per case	8 0	10 0
—No. 1	6 0	7 0	Nuts, p. 50 kilos	50 0	—
—Extra	6 0	7 0	—bag	36 0	42 0
—Giant	11 0	12 0	—Spanish, sack	16 0	—
—Loose, per dozen	0 6	1 0	—petate	65 0	70 0
—Red coloured	6 6	6 6	—Barcelona, per bag	32 0	34 0
—Jamaica Giants, per bunch	6 6	6 0	—English, per lb.	0 3	—
—Jamaica Ordinary, per box (p. doz.)	4 0	4 6	—Fibberts, per lb.	0 8	0 4
Blackberries, per peck	2 0	3 0	—English Walnuts, per lb.	0 4	0 5
Cranberries, per case (80 lbs.)	12 6	13 6	—French Walnuts, p. 50 kilos	50 0	—
Figs (English), per dozen	1 0	3 0	—Prunus, p. 50 kilos	12 0	11 0
—French, box	1 0	2 0	Pears (Alderman), per bundle of two cases	8 0	9 0
—96's	—	—	—(English):	—	—
—80's	14 0	20 0	—bushel	4 0	6 0
—64's	—	—	—Calabash, per bushel	1 0	1 6
Grapes (English), per lb.	—	—	—(French), per bushel	2 0	3 0
—Cannon Hall	1 6	4 0	—(French), Willamette, per box	12 0	14 0
—Muscat	1 6	4 0	—Beurre Hardy, per crate	9 0	10 0
—Black Ham	0 8	1 0	—American, per barrel	28 0	30 0
—Madresfield	1 0	2 0	Peaches (English), selected	6 0	10 0
—Black Alcornoque	1 0	2 0	—medium	4 0	6 0
—Gros Colman	1 0	2 0	—per bundle of 10	10 0	15 0
—Gros Maroc	1 0	2 0	—(French), per	2 0	2 6
—Lisbon Sweet	8 0	9 0	Pineapples, St. Michael	2 0	2 6
—Black Cluster	7 0	8 0	Plums (English), per 3 sieve	7 6	8 0
—Muscat of Alex.	1 0	2 0	—Damsons	0 2	0 3
—Almeria, p. bri.	1 0	2 0	—Sloes, per lb.	0 2	0 3
—ish, 1/2 sieve	8 0	12 0	—California, p. case (4 trays)	11 0	—

Vegetables: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Artichokes (Globe), per dozen	2 0	2 6	Lettuce, (cabbage), per dozen	1 0	1 6
Aubergines, p. dz.	1 6	2 0	Marrows (English), per dozen	6 0	7 0
Beans, Scarlet Runner	—	—	Mint, p. dz. bunches	3 0	4 0
—Dwarf, lb.	0 4	0 6	Mushrooms, cultivated, p. lb.	0 9	1 6
Beetroot, per bushel:	—	—	—broilers	1 0	—
—Crown	3 0	—	—outdoor	0 3	0 6
—Crown	3 0	—	Mustard and Cress, p. doz. punnets	1 0	—
Capsicum (Chili), box	2 0	—	Onions (Dutch) per	8 0	8 6
Cabbages (English), per tally	7 0	10 0	—(Spanish) New	7 0	8 0
—Crown	10 0	12 0	—per case	1 6	2 0
—(unwashed), per dozen bunches	6 0	10 0	—per doz. bun.	2 6	3 0
Carrots (English), per doz. bun.	1 0	1 0	Radies (English), per dozen	1 3	1 6
—per doz. bun.	1 0	1 0	Spinach, per bushel	2 6	3 0
—per doz. bun.	1 0	1 0	—(English):	—	—
Chicory, per lb.	0 3	0 4	—Selected, per 12 lbs.	2 6	3 0
Indian Corn, p. dz.	0 9	1 0	—(Dutch)	2 6	3 0
—lat	0 5	0 6	—(French) crates	1 6	1 9
—Endive, per dozen	2 0	—	Turnips (English), per doz. bunches	1 6	2 6
Herbs (sweet), (Dutch)	7 0	—	—(unwashed)	4 0	—
Horseradish, 32	15 0	18 0	Watercress, p. doz. bunches	0 6	0 6
—bunches, per doz.	1 6	2 0			
—Lettuce (French), per doz.	1 6	2 0			
—English Co's, per dozen	1 6	2 0			

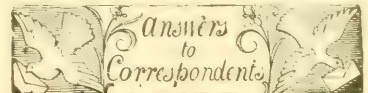
REMARKS.—All varieties of English Apples are still very plentiful, especially Cox's Orange Pippin, which is particularly fine this season. There is a better trade for English Pears. The first consignment of Pears from Washington State, U.S.A., arrived this week; the fruit is exceptionally fine and packed in boxes containing four to six dozen fruits; the California Pears are also good. Apples and Pears are nearly over, there being only a few fruits of Pond's Seedling, Monarch, and Bush Plums. Californian Plums are arriving in an over-ripe condition. Grapes from all sources are a very plentiful supply, especially Chateau and Javel varieties. Sales can only be effected at low rates. English Peaches are nearly over, also those from France and Belgium, but there are good Peaches from Washington State, U.S.A. The shipment of Peaches is expected to arrive from Ontario during the present week. Cobnuts are very plentiful and good, and are selling freely. Walnuts, both English and French, are a good supply, but the nuts are small. Supplies of Tomatoes continue plentiful, the second crop being a very good one; there is a slight increase in their value. French Tomatoes are also good, the crop is packed in crates weighing about 18 lbs., selling at from 15. 6d. to 15. 9d. per crate. Field

Mushrooms are plentiful and cheap, but cultivated Mushrooms are rather scarce. There is a slight increase in the supply of vegetables, with a slight decrease in prices generally. E. J. A., Covent Garden, September 27, 1911.

New Potatoes.

	per cwt.	per cwt.
Kent's	4 0	4 6
Queen's	4 3	5 0
Eclipse	4 3	5 0
Up-to-date	4 0	4 0
Lincoln's	4 0	4 0
Bedfords	4 0	4 0
Up-to-date	4 0	4 0
Eclipse	4 3	4 6

REMARKS.—Prices are firmer and there is every probability of a further rise. Edward J. Newborn, Covent Garden and St. James's, September 27, 1911.



APPLES SPOTTED. J. P. C. There is no disease present in the fruit. The injury was caused by the hot weather.

BEGONIA UNHEALTHY. T. J. Finch. No disease is present in the plant. The damping of the foliage of Begonias of the Gloire de Lorraine type is a common occurrence. It is due to an excessively moist, close atmosphere. Keep the plants and their surroundings drier and ventilate the house freely, standing the pots well apart.

BULBS ROTTING. Daffodil. The bulbs are badly infested with the bulb moth. Those which are still sound should be dusted thoroughly with flowers of sulphur.

CATERPILLAR FOR NAMING. J. T. R. Hoppe Hall. The caterpillar sent us is that of the pale Tussock moth (Dasychira pudibunda), and is known as the "Hop-Top". The caterpillar feeds on Hops, Roses and other plants.

CELERY AND TOMATOES DISEASED. P. J. P. The Celery leaves are injured by the Celery leaf blight. (Cercospora Aspi). It is too late to save the crop. Next season the Celery plants should be sprayed with an ammoniacal carbonate of copper solution when they are young, repeating the sprayings occasionally during the period of growth. The Tomatoes are attacked by the Tomato Black Rot (Macrosporium Tomato). This is the most common fungus attacking Tomatoes. Guard against extremes in affording water, in the use of green manure or anything which is likely to cause the fruits to crack. All fruits that show signs of disease should be taken off and burnt. It will be desirable to spray the plants occasionally with potassium sulphide, particularly when they are setting their fruits. Renew the air in the house when the weather is favourable, and avoid having too much moisture in the atmosphere.

CEROTEGIA SANDERSONI. L. G. P. The Cerotegia is a native of Natal, and requires a warm greenhouse or cool stove to grow it successfully. Soil in which ordinary greenhouse plants are potted, composed of peat and fibrous loam with a liberal admixture of sand, will suit it. The plant should be afforded moist conditions during its season of active growth, but needs to be kept moderately dry during its period of rest. It is the seed parent of the first recorded hybrid of the genus C. hybrida N.E.B. (see Gardeners' Chronicle, December 8, 1906, p. 383). The genus is only found growing in the Old World, but is widely distributed in the tropical and sub-tropical latitudes from the Canary Islands to the Philippines. Nearly 200 species are known, but not more than about 30 are in cultivation. They are not showy plants, but the flowers are very interesting.

CORRECTION.—In the report of the Sandy flower show (see p. 228), Mr. Birkenshaw was described as gardener to Miss Fitzpatrick. It should have read Mr. H. Tysoe.

CUCUMBERS DISEASED. J. D. The Cucumbers sent are badly injured by Colletotrichum oligochaetum. The diseased leaves should be removed and burned and the plants afterwards sprayed with liver of sulphur.

GARDEN SLOPING NORTH. Lady Penzance. You ask for instructions how to lay out a garden of seven-eighths of an acre, situated 500 feet

above sea level, facing north and with a chalk soil. Also what is the best manure and the most suitable flowers, vegetables, and fruits to cultivate. It will be wise to add as much dark soil as possible to the land, and the leaf-mould, which, you say, is at hand, will be valuable for this purpose. The pig manure, which will help to conserve moisture, will be the better of the two organic manures you mention. Many Roses, especially the Wichuriana hybrids, should do well, but you must not expect to grow fine Hybrid Perpetuals. A trial of the Tea, Polyantha, and Rugosa Roses may be made with every expectation of moderate success. The conditions would not be favourable to Sweet Peas, but Carnations may be grown. Other suitable flowering plants are Doronicum, Stocks, German Irises, Wallflowers. Sweet Williams, Pinks, Scabiosa, Campanulas, Lupines, Helenium (especially Riverton Gem). Coreopsis, Michaelmas Daisies, and many annuals. Peas and Beans are not suitable, nor would you be able to grow good Parsnips, but if the stump-rooted Carrots and the turnip-shaped Beet are chosen, these and nearly all other vegetables may be grown. The best standard Apples are Alfriston, Allington Pippin, Cockle's Pippin, Duchess of Oldenburg, Hambling's Seedling, Lane's Prince Albert, Lord Derby, Newton Wonder, Stone's Apple, Dumelow's Seedling, Worcester Pearmain, and Yellow Ingestre. Pears should be grafted on the Pear or "free" stock, and be selected from the following sorts—Beacon, Beurré Bosc, Conseiller de la Cour, Enile d'Heyst, Marie Louise, and Souvenir du Congrès. Of Cherries you should select Early Rivers, Frogmore Early Bigarreau, Late Duke, May Duke, and Tartarian. (See reply to A. C. B. on a similar question in the issue for August 12, p. 120.)

GOOSEBERRIES FOR A RONDURSHIRE GARDEN. J. S. E. The following varieties are suitable for your purpose—Whinham's Industry, Early Selphur, Preston Seedling, Bright Venus, Keepsake, Langley Beauty, Crown Bob, Roaring Lion, Leveller, and either Ironmonger or Red Champagne, Whitesmith and Red Warrington.

GRAPES DEGRADED. J. C. Hadnall. The rust found on the Grapes is caused by the presence of moisture on the fruit. The house should be ventilated early in the morning, so that the fruit will become dry before the temperature rises. No fungous disease is present.

INSECTS FOR NAMING. G. Spragg. The two insects sent are (1) the adult of a cuckoo-spit insect (Philaenus sp.), and (2) a bug belonging to the genus Anthrenus. Both were so damaged that the species cannot be determined. The former is injurious to many plants, including Chrysanthemums. The latter is beneficial and feeds on aphides, leaf hoppers, &c. The ill-effects shown in the brown patches on the leaves is not due to the insects; the damage is pathological and is frequently due to some climatic check or wrong treatment in cultivation. The discoloration usually disappears later in the season.

MOLES: Perplexed. A good plan to get rid of moles in small gardens is to mix half a peck of slacked lime in 20 gallons or so of water, and pour the mixture into one of the holes; chloride of lime may also be recommended.

NAMES OF FRUITS. J. H. B. 1 and 5, decayed; 2, Small's Admirable; 4, Dumelow's Seedling (Wellington); 5, Whiting Pippin; 6, Royal d'Angleterre.—A. G. T. 2, Duchess's Favourite; 3, Worcester Pearmain; 4, Pine Golden Pippin; 5, Yorkshire Greening; 6, Summer Strawberry; Pear decayed.—W. J., Bangor. 1, Darling Pippin; 2, Broad-Eyed Pippin or London Pippin.—Barn Rocks. 1, Red Astrachan; 2, Washington; 3, Blenheim Pippin; 4, Old Nonesuch; 6, Newton Wonder; 7, Pear Fondante d'Automne.—Starling. 1, Pearson's Plate; 2, send a better specimen; 3, Tower of Glamis; 4, Fean's Pippin; 5, Adams's Pearmain; 6, Blenheim Pippin.—R. S. Q. 1, Dumelow's Seedling (Wellington); 2, Brambling's Seedling.—R. H. Westbury. Pear: Williams's Bon Chrétien.—H. M. It is contrary to our rules to send more than six fruits at one time. Some of the specimens are too badly grown to be recognised. 1, Benoni; 2, Old English Seedling; 3, and 20, Allington

Pippin; 4, Ribston Pippin; 5, King of the Pippins; 6, Dumelow's Seedling (Wellington); 7, Chelmsford Wonder; 8, Annie Elizabeth; 9, Calville St. Sauver; 10, Fearn's Pippin; 12, Worcester Pearmain; 13, Pine Golden Pippin; 14, Baxter's Pearmain; 16, Lady Derby; 17, Scarlet Golden Pippin; 21, Small's Admirable; 23, Alfriston; No. 15 was decayed, and 11, 18, 19, 22, 24 unrecognised.—W. N., Alton. Shepherd's Newington.—Constant Reader. Stirling Castle.—J. M. H. 1, Pear Comte de Lam; 2, Beurré d'Amanlis; 3, Williams's Bon Chrétien; 4, Pitnastock Duchess; 5, Fondante de Cuern; 6, Beurré Hardy.—Henri. 1, Kerry Pippin; 2, Duchess of Oldenburg; 3, Eddinville Seedling; 4, Worcester Pearmain; 5, Cox's Pomona; 6, Peasgood's Nonesuch.—Grinstead. 1, Ross Nonpareil; 2, Lady's Finger; 3, Tower of Glamis; 4, Summer Thistle; 5, King of the Pippins; 6, May Queen.—Drone. Kerry Pippin.—Blad. 1 and 8, Newtown Pippin; 2, Woodcock; 3, Gospatrick; 4, Duchess's Favourite; 5, Sandringham; 6, Old English Codlin; 7, Potts's Seedling.

NAMES OF PLANTS: Chorley. 1, Populus canescens; 2, Pyrus intermedia; 3, Ulmus montana pendula; 4, Centradenia inaequaliteralis.—Island. Lulularia Kemperi aureo-maculata (syn. Farfugium grande).—W. H. H. Trachelium corollum.—E. P. D. Tamarix pentandra (T. gallica Pallasi rosea).—Nettlecombe. Indigofera decora.—J. F. X. 5, Smilax aspera. J. H. C. 1 and 2, both varieties of Acaulia japonica.—A. Munn. Londonberry. Castanea sativa, Spanish or Sweet Chestnut.—F. W. P. Rubus australis.—H. T. A. 1, Oncidium pubes; 2, Odontoglossum gloriosum; 3, Signatella rubicunda; 4, Dendrobium moniliforme.—Reader, Sale. Bignonia radicans.—C. E. F. Phytolacca decandra.—T. W., Surrey. Plumbago Larpetia.—H. Y. 1, Pteris longifolia; 2, Blechnum occidentale; 3, Nephrolepis pectinata.

RHODODENDRON BLOOMING. T. F. It is not uncommon for Rhododendrons to develop a few blossoms at this season.

ROSES: A. G. Cardiff. The variety Conrad F. Meyer succeeds very well on a wall. The Rev. F. Page Roberts grows it in this position, and thinks that, owing to the splendid ripening it gets when cultivated on a wall, it is more free-flowering than in any other position. This is worth noting, because the fault of Conrad F. Meyer is that, although a beautiful Rose and exceptionally hardy, it is not very free in the production of blossoms. It is, of course, capable of growing into an enormous bush if given free scope. We call to mind a plant growing in a garden in the Midlands which is already from 10 to 12 feet high and 8 feet through. The question for you to determine is whether you like Conrad F. Meyer sufficiently to devote the valuable space given by a wall to this Rose. Something depends on the aspect of the wall, which is not stated, and whether you might not be better remunerated by using some free-flowering Rose, such as Climbing Caroline Testout, or, if the wall faces south, Climbing Pape Gontier or Climbing Mrs. W. J. Grant. In respect to your second question, we may say that there are many Hybrid Perpetuals which often take some years to get established after being moved, and we are not surprised at Charles Lefebvre acting in this way. Victor Hugo is another Rose that dislikes moving. General Jacqueminot, however, is one of the freest of the H.P.s, and we should not have expected it to act in this way if proper cultivation has been followed. In the London district one might expect to find a border against a wall somewhat dry for H.P.s, but this is unlikely at Cardiff, where the average rainfall is half as much again as in London. Was the border well made before the Roses were planted? This is often a cause of trouble. However, as the Roses are now making good growth, and we have had a grand year for the ripening of the wood, they may be expected to flower well next year, if the shoot-boring sawfly, which often attacks the most vigorous shoots, is kept at bay. Mme. Léon Pain is a far better Rose than Viscountess Folkestone as a border. Not only is the colour and shape much more pleasing—which may be a matter of taste—but Mme. Léon Pain has

better foliage, gives a much larger proportion of good flowers, and flowers more continuously, while the buds are specially beautiful and the blossoms are held erect and look well both near and at a distance. Mme. Léon Pain is one of the very best bedding Roses of the taller-growing varieties. The weakness of Viscountess Folkestone is that, whilst it often gives a good Rose, it does not always do so, and the flowers are not well carried on account of its thin stems and rather floppy habit. We prefer to cultivate it as a standard rather than in a bed.

RUSH MATTING: Miss J. M. M. Under the general term of Rushes the stems of several species of marsh-growing or water plants are known commercially. All the species—perhaps in decreasing quantities—are used for making seats of chairs, hassocks, mats and baskets. Juncus effusus furnished the wicks for the old rush lights. Norfolk seems to have been the chief county where the raw material was dealt with, and an annual fair was held at Norwich, where large quantities were sold. The larger stems of the well-known Bulrush or Reed Mace (Typha latifolia) are also used for the coarser kinds of mats, while Scirpus lacustris, belonging to the Sedge order, and also known in some localities as Bulrush, is, or was, used in Norfolk for making baskets, hassocks, and similar articles. The specimen you send is insufficient for its accurate botanical determination, but it would seem to belong to a Scirpus rather than to the other plants mentioned. The following firms are dealers in rushes:—Messrs. S. A. Gosser & Co., 23, Moor Lane, Fore Street, London; Howard Walter & Co., 24, George Street, Tower Hill, London; and J. F. Ravinet & Co., 93, Southwark Street, London.

RUST ON PEAR: G. B., Westbury. The Pears are attacked by Pear-scab. All dead twigs should be cut from the tree. Next spring, when the leaves are beginning to unfold, spray the trees with Bordeaux mixture at half the usual strength.

VINE BORDER: H. Jones and Young Gardener. The best compost for a vine border is good, rich, fibrous loam procured from an old pasture, mixed with 5 cwt. of each of old mortar rubble and $\frac{1}{2}$ inch bones to every five loads of the loam. A quantity of wood ashes or charcoal may also be added. First place the drainage in a proper order, and then arrange over the drainage materials some good turves with the greenward downwards. The most satisfactory method, if the existing vines are in a poor state, would be to burn them, and commence afresh with young ones, placing fruiting canes between the permanent vines with a view to removing the former when the latter become more room. The border in this case would be much better made up at intervals extending over three or four years. If the old vines are to be retained, the whole of the old soil should be removed, and if the roots are carefully preserved and the work carried out during October no harm will happen to them. Instead of planting young vines between them, train up a young growth from the bottom each year, subsequently removing the old rods. Young Gardener may plant the varieties he names, though it is not a good practice to plant too many varieties in the same viney. If Muscat of Alexandria is included, plant this variety at the warmer end of the house. Muscat Hamburg would not be suitable.

VINE ROOTS: A. T. H. The vines are badly infested with eelworm. The only certain remedy is the injection of carbon bisulphide into the soil. A specialist in this matter would do the work most satisfactorily.

Communications Received.—Captain C. S. R. J. J. C. Bonaparte, E. S. R. C. Legram, H. Mantou, F. E. C. W. T. M. H. T. C. Kingston, H. S. A. W. H. H. H. J. E. H. L. H. J. E. G. A. F. & Co., W. E. B. H. S. F. H. Van L. L. S. E. E. M. J. H. A. C. T. D. W. P. H. W. V. V. & Son, Alpborthens, E. A. B. F. B. F. J. A. W. B. & Son, J. B. Herts, C. T. J. G. J. P. Junr., & Co., J. A. J. F. M. W. C. R. Ireland. Yorkshire Gardener, W. H. W. F. M. R. F. J. H. H. D. C. Ireland, G. F. M. F. W. P. J. G. Sandwich. A. B. T. W., Merstham, T. S. A. G. W. C. Elmsmere. S. H. C. E. F. G. S. E. H. Starling, W. H. W. E. B. H. Jones, Young Gardener, W. H.

Another injurious result of the drought was the profuse dropping of Apples without any strong wind to blow them down. Every variety grown by me, excepting Gascoyne's Scarlet, was more or less affected in this way as it approached the ripe stage. A similar dropping of Plums took place soon after the fruit had set, leaving their crops more or less deficient in most parts of the country.

More serious, because a permanent source of loss, is the dwarfing of a great number of Plum trees and Black Currant bushes planted in the autumn or winter of 1910-11, together with the dying of not a few. Similarly, Black Currants raised from cuttings planted at the time named perished to a great extent, or lost their leaves early, and failed to make any considerable growth. Plums and Currants planted a year earlier, as well as Apples, made excellent growth in spite of the drought.

Last among the disadvantages incidental to the hot drought to be named was the wasp plague.

PREPARATIONS FOR PLANTING.

Up to the time of writing the land has remained too hard for ploughing and subsoiling a piece of land after Potatoes, intended for Apples and Gooseberries. The surface to the depth of 3 or 4 inches has been cultivated easily enough; but below that depth no plough will work properly. *J. Southern Grower, October 2.*

NEW OR NOTEWORTHY PLANTS.

VIOLA COMOLIA.

SOME years ago I said to Mr. Farrer, "You should go to the Coldella Finestra, not only for Saxifraga florulenta, but particularly for the very rare Viola nummulariifolia, which is, I think, the best of all the Pansies." He went, and wrote his experiences in the *Gardeners' Chronicle* (see vol. xlviii., p. 214).

I saw lately in the Alps of Bormio (Valtellina) the exquisite carpets of flowers of the very rare Viola Comolia (Messara), which hides its charms in a very small part of the Orobian Alps, and the botanists of the country are not disposed to reveal the place where it grows. The species was described by Dr. Messara, and the name is retained in the *Index Kewensis*. But Comolli gives it as a form of *V. nummulariifolia*, and Bertolini as one of *V. alpina*, while some others consider it as an Orobian form of *V. cenisia*.

Now that I have seen the plant growing wild, I recognise its claims to specific rank, as the plant is quite different from the other species named. It runs over most of the moraines, and its stems creep between the iron-hard, rock-like stones; the leaves are elliptic or round, and quite entire; the stipules are linear, and also entire; the sepals are ciliate, and slightly hirsute; the flower is large, very fragrant, and of a deep rose colour, something like *V. bosniaca*, but of a good pink, the same shade as in Rose "Jules Margottin"; the outsides of the petals are yellowish-green; the spur is short and obtuse. The plant makes an exquisite picture when in flower in the gravelly ground where it grows. I think its cultural requirements will prove to be similar to those of *V. nummulariifolia*, or of *V. cenisia*.

SANGUISORBA VALLISTELLINÆ.

This rare and beautiful plant is confined to small valleys of the beautiful and rich Valtellina. The road crossing the chain of the Bergamese Alps, between Sondrio and Val Brembana, leads through the little and very closed valley of Ambria. There, at a height of from 670 metres to 1,800 metres, in the bushes, and near to the streams, even in the hay fields, grows this white-flowering, elegant, and very big perennial. It has glaucous leaves, which are elegantly toothed, and its long spikes of white flowers are deliciously fragrant. I have had specimens of this plant at Floraire for many years, but I never saw it growing wild before. I was charmed with it, and asked the peasants there if many people noticed the plant. They said, "Nobody comes here; you are the first traveller this year"—(it was August 12)—"and probably you will be the last! We know well that this plant is a good thing for our Hay, and useful for cattle; but why does this plant not grow elsewhere as in our little valley? Can you explain how this is, and why we are the only possessors of it?" I could not answer; but, in fact, *Sanguisorba Vallistellina* (syn. *S. dodocandra*) is only to be found in the small district comprised between Sondrio and the Val Brembana, at the northern foot of the Pizzo del Diavolo. It is one of the best herbaceous perennials for our gardens. *H. Cantoni, Genova.*

* Messera, *Prod. della Fl. Valtell.* 203.
† See *Rivista Italiana di Scienze Nat.* vol. 1897.

NOTICES OF BOOKS.

PROGRESS IN THE BREEDING OF HARDY APPLES FOR THE CANADIAN NORTH-WEST.*

THE bulletin of the Experimental Farms, Ottawa, which bears the above title gives the results of 24 years work in raising new varieties of Apple with a view to obtaining sorts capable of withstanding the cold of the prairie districts of Canada. In 1887 seed of the "Berried Crab," *Pyrus baccata*, was obtained from the Imperial Botanic Gardens, St. Petersburg; this small wild Siberian Crab-apple grows abundantly on the shores of the Baikal Sea and in many parts of Northern Siberia. From these seeds young trees were raised, and, as soon as they were large enough to transplant, some were sent to stations in Manitoba and Saskatchewan, where, during a trial of about 20 years, they have never been injured by the winter, and have for many years fruited abundantly. The fruit, however, is, in most cases, small—not much larger than a Cherry, astrigent and acid, and, in some cases, bitter. The tree is highly ornamental, both in blossom and fruit, rather dwarf in habit, low-branched and strongly built, the fruit is firmly attached to the tree, and well adapted to resist high winds.

Efforts were made to improve the size and quality of the fruit by crossing with the hardiest and best Apples grown in Ontario. Many of the young trees from these seeds fruited the fourth year after sowing. Of the crosses, five appeared worthy of propagation for more general test at the various experiment stations. These cross-bred sorts, grafted on roots of seedlings of *Pyrus baccata*, have produced trees which seem to be quite as hardy as the wild form of *P. baccata*.

In 1896 a series of crosses were started with *P. prunifolia* with seeds from St. Petersburg, and in 1902 crosses were made between *P. malus*, the wild Apple of Europe, with some of the best Canadian sorts. The resulting trees have stood several winters at Brandon and Indian Head without injury.

As a result of the trials, some 16 varieties have been selected as deserving of more extended trial. The weight of fruit of the crosses is twelve to fourteen times heavier than that of *P. baccata*; some are, so far, free from blight; they vary in colour and season, and are most of them sub-acid and of good flavour; one of the larger called "Columbia," a cross between *P. baccata* with "Broad Green" pollen, is 1.8 inch across and 1.6 inch deep.

Of crosses between *P. prunifolia* and some of the best cultivated Apples, there are 10 showing sufficient merit to justify more extended test. Many of the best crosses produced from *P. baccata* and *P. prunifolia* and their related forms have been re-crossed. Several of these are promising, including one named "Martin," the fruit of which is borne in clusters. The fruit is $2\frac{1}{2}$ inches across and $1\frac{1}{2}$ inch deep, nearly round, colour orange-yellow with an orange-red cheek, flesh white, pleasantly sub-acid, fine-grained, easily breaking, with an agreeable flavour; season, October to February, thus showing in 24 years the improvement on *P. baccata*.

Several promising crosses have also been produced between hardy Russian and other varieties; thus one named "Rideau" from "Wealthy" pollinated with "Duchess of Oldenburgh" seems likely to prove a good Apple.

The success achieved in relatively so few years is encouraging, and the indications are that, by persevering along the lines laid down, a number of varieties will presently be available, possessing hardness, size, and quality suitable for the settlers in those northern portions of the country where ordinary Apples under average conditions cannot be grown successfully. *Cecil H. Hooper.*

* By Wm. Saunders, Director of Experimental Farms of Canada.

GATHERING APPLES BY INSTALLMENTS.

THE loss caused by the gale shows the importance of gathering dessert Apples by installments as they ripen, instead of waiting till all of a given variety are well coloured. As all kinds were gathered before the usual time, on account of the dropping, the only varieties remaining on the trees when the gale occurred, except in a particularly well-sheltered orchard, were Cox's Orange Pippin and Allington Pippin, other late sorts having been picked a day or two before. The ground was soon strewn with fruit, but much less thickly in the case of Cox's Orange Pippin than in that of Allington Pippin, because the ripest of the former had been gathered. Allington Pippin had only just begun to drop to any considerable extent, and as many of the Apples were still green, the intention was to delay picking them for another week. What ought to have been done was to gather the ripest as soon as dropping began. As this was not done, about one-fourth of the crop became windfalls.

RESULTS OF EARLY GATHERING.

There appears to be no doubt that Apples were fit for gathering before the usual time; for mid-season and late varieties have never kept better up to the present period.

CLEMATIS THUNBERGII.

THIS is one of the most ornamental of the species of *Clematis* for the decoration of a corridor or large, cool house. It is extremely graceful in habit, hanging in long, perpendicular growths, which produce flowers at all the nodes, many together forming a curtain. It lasts in flower for several weeks. The accompanying illustration (see fig. 112) shows only a small part of a long shoot, and it may be imagined from this what the mass must be like. *C. Thunbergii* was introduced two or three years ago to the Cambridge Botanic Garden, where our photograph was taken, by seeds sent from South Africa by Professor Pearson. The flowers are white and very sweetly-scented. In the Cape flora it is said to be readily known from other Cape species by its lanceolate sepals and pointed and slightly twisted flower buds. In cultivation the buds are hardly twisted, but the sepals are slightly so. The leaves are described as pubescent, but here they are glabrous; they are sub-bipinnately parted, pinnae distant, leaflets petiolate, broadly ovate, acuminate with three or more acute teeth on each side. The panicles are described as shorter than the leaf, but here they are considerably longer; the flower-buds are ovate and pointed, the sepals spreading, lanceolate acuminate, filaments hairy at base; anthers glabrous linear. This interesting and ornamental species is found in the woods of Adow, Uitenhage, where it forms a rambling climber. *R. Irwin Lynch, Botanic Garden, Cambridge.*

GRAPES AT ALDENHAM.

HAVING read with interest the recent correspondence in the *Gardeners' Chronicle* on the subject of syringing vines advocated by Mr. Beckett in his weekly calendar, and criticised by various writers, I took more than a passing interest in the methods of vine culture exemplified at Aldenham, on the occasion of a recent visit which I made to these celebrated gardens.

I believe I may say that it has never been suggested that vine culture is made a speciality in these gardens. Mr. Beckett endeavours to produce good fruit in conditions which are not ideal for the production of exhibition Grapes. The vineries—three in number—are of the ordinary lean-to type, and a fourth, with a span roof (devoted to late varieties) is situated in a faulty position under overhanging forest trees on the west side; conditions most unfavourable to the production of Grapes, especially late ones.

I was much impressed by the condition of the vines in the lean-to houses. One house, which was devoted to Black Hamburgh, ripening in June and July, had yielded an excellent crop of medium-sized, well-finished bunches of good flavour, and for the future also they made fair promise, judging by the appearance of the leaves, well supplied with chlorophyll, and by the wood, which, though small, looked thoroughly ripe. Another house, containing Muscat of Alexandria, had a similar appearance; the remaining few bunches were well furnished with amber-coloured berries, proving that the "setting" properties of the vines under their present method of treatment is perfectly satisfactory. I noted, also, that in all cases the vines had broken regularly; if they had a fault in this connection, it was that of having too many growths.

The third vinery I visited seemed to me worthy of the especial attention and interest of all engaged in Grape culture, embodying as it does an example of the results of long practice and sound commonsense. There is nowadays an increasing tendency to remove vines which are far from being exhausted, and to replant with young canes, in order to produce sensational results. The length of a vine's life is really determined by

the treatment it receives during the first four years. If vines are mismanaged and badly pruned during this period they cannot be expected to give satisfactory results subsequently; but, given good and sensible treatment, the cropping power of a vine at 30 years of age should be as good as at any other period of its existence. In the management of the vinery under notice, Mr. Beckett evidently keeps this idea prominently before him. In March, 1910, it was replanted with Muscat of Alexandria; an inside border was prepared, 4 feet wide, with a similar width outside, and 3 feet deep with ample drainage. The vines—year old canes—were pruned to

foundation for future success has been laid. Some might think such a plan would involve a waste of time and space, but this is far from being the case. Mr. Beckett utilises the roof space by the introduction of supernumeraries in a specially-constructed border, 12 feet from the front wall and 5 feet wide. These vines—of the same kind as the permanent canes—were planted and pruned in a similar manner, and their growth was perfectly satisfactory. At the time of pruning sufficient length of stem was left to enable each vine to give five, and in some instances six, bunches of fruit of from 2 lbs. to 3 lbs. each; such varieties as Muscat of Alexandria, Madresfield Court,



FIG. 112.—CLEMATIS THUNBERGII: FLOWERS WHITE.

within an eye or so of their base. The subsequent growth was all that could be desired. Many gardeners in such a case would allow the canes to remain 6 feet long in order to cover the roof space quickly, and procure an early crop of Grapes, but Mr. Beckett cut them back to within 3 feet of their base, retaining a pair of buds above the lowest trellis wire, and a third one for the leader, content to forego all idea of a crop of Grapes the first year. The result was vigorous growth—not too gross—and short-jointed wood, 12 to 15 feet long, before the leader was topped with a view to plumping up the basal eyes, which, if required, will give good bunches of fruit next season.

By pursuing this method of pruning, a good

Prince of Wales, and Black Alicante being represented.

Such a result, from vines planted as recently as March, 1910, cannot be regarded as otherwise than satisfactory, and from the growth made this season, and the manner in which it has matured, the possibility of a crop double as large in 1912 is assured. It may at the same time be considered as certain that the permanent vines are also progressing in a satisfactory manner.

In conclusion, I should like to remark that overcrowding, which is so inimical to the well-being of the Grape vine, is never allowed at Aldenham, each leaf seems to be the object of individual care, and it gets a proper exposure to the daylight. *E. Molynaux.*

DOLICHODIERA TUBIFLORA.

THE Gesneriaceae includes many fine flowering plants suitable for decorating the conservatory in summer, and none is more charming than *Dolichodiera tubiflora* (see fig. 113), which is sometimes known as *Gesnera tubiflora*. The plant grows about 2½ feet high, and is slender and graceful in habit, especially when the inflorescences are allowed to arch over adjacent plants. The leaves are shortly petiolate, oblong or oval in shape, the largest 4½ inches long; they are pubescent on both surfaces, and, indeed, the whole of the plant is more or less hairy. The flowers are from 3½ inches to 4 inches long, and very sweetly scented; the corollas are pure white, and measure 1½ inch across the mouth. A batch of plants will furnish a succession of flowers over a period of several weeks. No greenhouse subject is more easily managed; the root-stock is tuberous, and propagation may be effected by removing and inserting offsets at the time of potting, or plants may be raised from cuttings, which form roots readily. The plant is best cultivated in an intermediate house, except for a period during the summer, when it does well in a conservatory or cool house. It should be rested at the proper season by placing the pot on its side under the bench or stage. A mixture of half peat and loam, enriched with well-rotted manure, and the usual addition of sand, forms a suitable compost. The species is figured in the *Botanical Magazine* as *Gloxinia tubiflora*, tab. 3971, and was introduced to Glasgow by seeds sent to the late Dr. Moore by Mr. Tweedie. It is a native of Uruguay. In the *Generum Plantarum* the genus is placed under the section *Locheria* of *Achimenes*, but for garden purposes the name *Dolichodiera* should perhaps be preserved, since its general aspect does not suggest *Achimenes* and its root-stock is quite different from that of the latter. This opportunity may be taken of enquiring for the exceedingly beautiful *Gesnera Donkharri* introduced by Messrs. James Veitch & Sons about the year 1858. The plant has dark foliage and salmon-coloured flowers. It may not yet be entirely out of cultivation, but it is exceedingly rare. *R. Irwin Lynch.*

FLORISTS' FLOWERS.

"SWEET PEA STUDIES."

A BULLETIN issued by the U.S.A. Department of Horticulture from the Cornell University is devoted to "Sweet Pea Studies."

In 1909 a National Sweet Pea Society was established in America to encourage the cultivation and improvement of the Sweet Pea by exhibitions, field tests, conferences and publications, or in any other way determined by the society. Shortly after the foundation of the society an arrangement was made with the New York State College of Agriculture, whereby the society undertook to provide the seed and the Department agreed to conduct the field-plot and forcing-house tests, in conjunction with a committee on nomenclature appointed by the society. The immediate responsibility for the trial was entrusted to Mr. A. C. Beal, a member of the experimental staff of the University. We note that, during the flowering period, Mr. Beal had to spend practically all his time in the field during the day. There were 469 trials, 20-foot rows of each variety being planted. In addition to the Sweet Peas, 46 types of the genera *Lathyrus*, *Orobis* and the closely-allied form *Vicia* were obtained. In addition, there was at the disposal of the superintendent and committee the Government collection, which comprised all the trade species and varieties of the perennial Pea, and other genera and species allied to the Sweet Pea. These are furnishing material for the attempt to secure hybrids between the various forms.

Stocks from the following British firms were tried:—Messrs. Bath, Unwin, Deal, Stark, Wat-

kins and Simpson, Hemus, Dobbie, Bide, Miller, and Cole.

PROMISING VARIETIES.

The following varieties were "highly commended":—Senator Spencer, Marie Corelli, and Lottie Hutchins Spencer, from Burpee; Masterpiece and Mrs. Hugh Dickson, from Dobbie; and Mrs. W. J. Unwin, from Unwin.

These further varieties were "commended": Uncle Sam, Othello Spencer, from Burpee; Tennant Spencer, Lovely Spencer, from Morse; Rosebella Hoare, Jack Unwin, and Edna Unwin, from Unwin; Zebra, from Hemus; Florence Wright, from Stark; and Sunproof King, from Bide.

It will be seen that British varieties come out well among those singled out from 469 trials for commendation. There is an interesting discussion in the bulletin as to the effect of early sowing. It was found that the quality of the



FIG. 113.—DOLICHODIERA TUBIFLORA:
FLOWERS WHITE.

flowers was best from autumn-sown plants, but the difficulty of wintering them in America in the open ground (at Ithaca) is as great as in England.

There are interesting tables giving the dates of sowing, number of seeds planted, number which germinated, date of germination, and date of first bloom. For example, Countess Spencer, sown on March 12, germinated on April 15, and bloomed first on June 30—a result very similar to that which we get in this country.

The second and larger half of the bulletin deals with winter-flowering Sweet Peas. This type is distinct in its habit of growth and in its flowering character. The difference is well expressed by Mr. Beal in his report. He says: "Unlike the garden type, which apparently stands still for a time, when only a few inches high, while side shoots develop, the winter-flowering Peas grow rapidly until they attain a

height of 2, 3 or even 4 feet, when they begin to flower, after which time the side shoots develop."

The three well-known strains of early or winter-flowering Sweet Peas were grown, viz., "Zvolaneks," "Telemly or Arkwrights," and "Englemans." The tests were thorough, as all obtainable varieties were grown for two seasons under glass and out-of-doors one summer. It has often been stated that these early Sweet Peas are hybrids between the Sweet Pea and a Vetch, but this story has never been verified. This is how the Cornell authorities dispose of it. "In all trials thus far we have not discovered the slightest reason for believing that any variety was a hybrid between some species of the Vetch and *Lathyrus odoratus*. This conclusion was reached after growing the following species of Vetch—*Vicia sativa*, *V. villosa*, *V. Gerardii*, *V. fulgens*—side by side with the varieties of winter-flowering Sweet Peas, and studying them at all stages of development."

The decision as to the three different groups is that they all have the same habit of growth and the early-flowering propensity. The best varieties are:—White, Snowbird; primrose, Earliest Sunbeam; pink, J. F. Dolansky; crimson, Meteor; bicolor, Christmas Pink; lavender, Telemly Lavender.

It affords matter for reflection that these very complete trials are carried out in America in conjunction with a State department, which issues at the expense of the Government, a thoroughly informative bulletin. *W.*

EXPERIMENTS IN THE POLLINATION AND SETTING OF FRUIT.

THE following is a brief summary of experiments which I have conducted during the present year on the pollination and setting of fruit. To test the effect of excluding bees from Strawberry blossoms, the box portion of a hand-light was placed around a plant and muslin tied over the top; on other plants, single bunches of unopened flowers of several different varieties were placed in muslin bags, but in each case very little difference between the fruit of the enclosed flowers and those in the open was to be noticed; apparently the wind carries the pollen over the flower, as the ordinary Strawberries in cultivation set their fruits with pollen of the same flower.

In Raspberries and Loganberries, enclosed in muslin bags, the fruits set, but they were not quite as large or as perfectly formed as in the open.

In Gooseberries, and Red and White Currants, of which unopened blossoms were enclosed in muslin and paper bags, but few fruits set, and those apparently only where rubbed by the bags. In those bagged and hand-pollinated, the fruits of Gooseberries set fairly well, but as the blossoms open gradually, the flowers should have been pollinated several times. In Red Currants bagged and hand-pollinated, the fruits set quite as plentifully as in the open, and some of the berries were notably larger than the average.

The above-mentioned fruits are self-fertile, and though all are benefited by the visits of bees, with Gooseberries and Red and Black Currants bees are absolutely necessary for the production of fruit.

The fruit trees, namely, Apples, Pears, Plums, and Cherries, may be divided into those varieties that are self-fertile and those that are self-sterile; i.e., those that will set and mature their fruits when pollinated with pollen of the same variety and those that will not.

In Pears, no fruits matured on 15 varieties which were bagged but not pollinated; with those bagged and pollinated with their own pollen, Durondeau, Beurré Diel, General Todleben, Dr. Jules Guyot, Josephine de Malines, and Marie Louise set fruits, but they gradually fell, last of

all General Todleben; the only two varieties which matured their fruit were Duchesse d'Angoulême and Colmar d'Été.

Of Pears cross-pollinated, I have good results with Vicar of Winkfield with Winter Crasanne pollen, Williams's Bon Chrétien with Duchesse d'Angoulême, Conference with General Todleben and vice versa.

In Plums, trials were made with Victoria, Czar, Rivers's Early Prolific, Cox's Emperor, July Greengage, Greengage, Pond's Seedling, Bittern, Jefferson, Dennison's Superb, and Early Orleans; of those bagged and left untouched, only Victoria and Czar set and matured their fruit; of those bagged and pollinated with their own pollen, only Victoria, Czar, Dennison's Superb, Bittern, and Rivers's Early Prolific matured their fruit. These varieties would therefore seem to be self-fertile, but most of them appear to set fruit

fruits; Morello set nearly as well as in the open when pollinated with its own pollen.

In the cross-pollinated Cherries, fruit set in each case, showing the necessity of visits of bees and the advisability of mixing different varieties of Cherries in a plantation.

Out of 63 varieties of Apples tried, on which unopened blossoms were bagged and left untouched, only Irish Peach matured its fruit, and that was very good; of those bagged and pollinated with their own pollen by brush or anthers, the following matured their fruit:—Irish Peach, White Transparent, Newton Wonder, Ecklinville Seedling, Summer Golden Pippin, Baumann's Red Winter Reinette, Peasgood's Nonesuch, Christmas Pearmain, King of the Pippins (damaged by sawfly, eventually fell), and, I believe, American Mother and James Grieve, but am not certain of the two latter. Whereas, in nearly all the crosses made, good fruits have resulted; out

taken out with forceps, and were pollinated by camel's hair brush or anthers with the pollen of nine different varieties of Apple, to try and see which would give the best result; eight of these set fruit, namely, with High Cannons, Bramley's Seedling, Grenadier, Lady Heniker, Golden Spire, Duchess's Favourite, The Queen, and with its own pollen. In these trials only with Peasgood's Nonesuch did fruit not set. However, they have gradually fallen till the only ones left are those pollinated with High Cannons and Bramley's Seedling, the latter being one of the best fruits on the tree. It would be of interest and probably of value to find out a good polliniser to plant among Cox's Orange Pippin, which is a self-sterile variety, i.e., flowers self-pollinated will not mature fruit. One grower informed me that he found Worcester Pearmain a good variety to plant among Cox's Orange Pippin, and Mr. C. Martin, manager of the Toddington Orchard Co., in Gloucestershire, told me his best fruits of Cox's Orange Pippin came from a plantation interplanted with Duchess's Favourite.

We want more light on this subject in England. Messrs. F. J. Chittenden, W. O. Backhouse, Little, and Avery have added valuable information, but we still need much investigation and observation of fruit-growers and economic botanists, before we reach the knowledge already gained by American and Australian horticulturists as to which varieties to plant together. Cecil H. Hooper.

COLLETIA CRUCIATA.

THIS very interesting Chilian shrub (see fig. 114) is by no means generally met with in gardens. It is far harder than its habitat would suggest, being rarely or never injured by the winter frosts in Devon or Cornwall. It was introduced into this country more than 80 years ago, and was also raised from seed of *Colletia horrida* or spinosa—a species bearing long, awl-shaped thorns—at Bicton in Devon in 1849, but the laterally-compressed spines were so dissimilar from those of *C. horrida* that for a considerable period it was thought that some mistake had been made and that the seeds sown could not be that of *C. horrida*. Eventually, however, it was proved that Mr. Barnes, the then head gardener at Bicton, was correct in his assertion; spines of the two forms, now known as *C. cruciata* and *C. horrida*, being found on the same branch. At the time that *C. cruciata* appeared at Bicton it was named *C. bictonensis* by Dr. Lindley, who failed to discover its identity with *C. cruciata*, which was introduced in 1824, one year after the introduction of *C. horrida*. A correspondent writing some years ago stated that the flowers did not add much to the effect of the shrub, and this assertion has, from time to time, been made by other writers. As a rule, it may be admitted that the small, white, urn-shaped flowers, which are waxlike in texture and very lasting, remaining fresh for a lengthened period, do not render the shrub a conspicuous object, since they are rarely borne in sufficient numbers to do so. But in instances, like the example from which the spray shown in fig. 114 was cut, the case is very different, the effect produced being distinctly beautiful and striking. The specimen in question is growing in a wide border at Kingswear, South Devon, and is about nine feet in height, its diameter being about the same, though a writer some time ago stated that *C. cruciata* rarely grew more than 4 feet high. In November and December this shrub was covered with flowers, and formed a charming picture, even at some distance, at a time when scarcely anything else was in bloom in the open. The spray illustrated was photographed during the first week of December, and represents faithfully the condition of the entire bush. The flowers exhale a pleasing, nutty aroma, which is noticeable on fine, still days at some little distance from the bush. It has before now been suggested that *Colletia cruciata* flowers in summer. Here, however, it invariably blooms during November and December. Curiously enough, though, I saw some years ago in the south of Ireland a bush of *C. horrida* in flower at the end of May. W. G. Fitcherbert.



FIG. 114.—COLLETIA CRUCIATA: FLOWERS WHITE.

more plentifully and bear larger fruits when pollinated with pollen of another variety. I ought here to add that Mr. W. O. Backhouse, who has made trials with Rivers's Early Prolific on a large scale, finds it is the exception for this variety to set fruit when fertilised with its own pollen.

Of flowers that were cross-pollinated, I had good Plums on Pond's Seedling with Czar pollen, Rivers's Early Prolific with Victoria pollen, Victoria with Czar pollen, Dennison's Superb with River's Early Prolific pollen; the pollinations were made without emasculation.

With Cherries, out of some nine different varieties, no variety set fruit when bagged and left untouched; when bagged and pollinated with their own pollen, only one variety, Florence, beside Morello, set fruit, and it only bore one or two

of 64 crosses, some 48 were successful; among the best may be mentioned:—Brabant Bellefleur with Beauty of Bath pollen, Mr. Gladstone with Beauty of Bath, Allriston with Beauty of Bath, Christmas Pearmain with Cox's Pomona. Mère de Ménage with Sandringham and Hormead Pearmain, Allington Pippin with Summer Golden Pippin, Beauty of Bath with Summer Golden Pippin, High Cannons with Grenadier, The Queen with Baumann's Red Winter Reinette, Lane's Prince Albert with The Queen, Cellini with Graham's Royal Jubilee. These crosses were made without taking out the stamens from the flowers, pollination being effected by brush or anthers; if the brush was used, it was dipped in methylated spirits and allowed to dry before using again; but in the case of a tree of Cox's Orange Pippin, nine bunches of unopened blossoms had their stamens

The Week's Work.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEONARD DE ROESCHILDE, Esq., Gunnersbury House, Acton, Middlesex.

NYMPHÆA.—We have secured a good lot of seed of *N. gigantea*. The seeds were detected floating upon the surface of the water and were skimmed off. They were at once sown in muddy soil in a stove temperature, the soil being covered about an inch deep with water. The seedlings should, if all goes well, be fit to plant out in the spring, in which case they will flower next summer. Those who may have *Nymphæas* carrying seed-pods will do well to watch them closely now, and until the capsules burst. The blue-flowered varieties should seed well this autumn.

PLANTS FOR FORCING.—Now is the best time to attend to the necessary potting and repotting of plants, including shrubs, intended for forcing in the spring. *Deutzias*, deciduous *Rhododendrons* (*Azaleas*), and the various species of *Prunus* and *Pyrus* that are used for the purpose, need attention at the roots after they have been forced the previous season. It is not necessary to repot the plants every year, but if this is not done, a good top-dressing is essential. Remove as much of the old soil as possible without damaging the roots, and, if this is done carefully in the case of those that are to be potted, receptacles of the same size may be employed again. Select loam of good quality, and mix with it a quantity of leaf mould or well-decayed manure. Pot firmly, and, when the work is finished, give a thorough watering, afterwards plunging the pots in ashes to their rims, as a safeguard to the roots against frost and cracking of the pots. In the case of *Azaleas* peat must be employed, and for *Clematis* some fine lime rubble. A few fresh plants should be procured each season for forcing to keep up the stock, selecting, if possible, a few new kinds to provide greater variety. Of late years, deciduous *Magnolias* have been largely used for forcing, and they are very suitable for the purpose. It will repay for the extra trouble to do the work carefully, and, if it is done in good time, the roots will have a better opportunity to make a good start. Fresh plants should not be forced so early as the older ones; they should be allowed to grow steadily for the first season. Large plants of such kinds as *Lilac* that are still planted out should be well watered to encourage the development of the roots. *Astilbes* (*Spiræas*) and similar herbaceous plants, also *Fritillarias* (*Crown Imperial*), *Peonies*, and such *Liliums* as *L. candidum*, are best potted early in the autumn.

THE GREENHOUSE.—There are several plants that will do good service between now and Christmas in the greenhouse. *Salvia splendens grandiflora*, for instance, blooms well in the late autumn, and is better than the other forms of this plant for the purpose. The bright colour of the flowers is especially pleasing in dull weather, and is as much appreciated as the colours of the Zonal *Pelargoniums*. These plants should be afforded a little warmth, but not more than is sufficient to dry up superfluous moisture in the house. It is always advisable to leave the ventilators open a little at night time, even if the weather is slightly frosty; in the daytime the side ventilators may be opened as well. During the winter season the ventilators near to the hot-water pipes should be employed, as the air is warmed when it passes over the hot-water pipes. This system of ventilation is especially necessary in the growing of winter-flowering *Carnations*.

PITS AND FRAMES.—Unheated pits and frames should be cleansed and made tidy before the winter arrives. The glass should be washed on both sides to allow all the light possible to reach the plants. Nothing is better for placing on the staging than ashes, which should be stirred at times to prevent *Alge* making them unsightly. Intermediate *Stocks* in pots, such as those of the East Lothian kind, if well rooted and still in the open, should be brought under glass before the heavy dews affect them. *Violets*

should be lifted, and placed in frames if the work has not been done already. Beds formed of fallen leaves will afford a gentle bottom heat, inducing fresh root action, and, at the same time, supplying suitable moisture. Keep the plants as close to the glass as possible, remembering that the leaves are sure to sink closer together. Be careful with the watering, and remove the lights on warm days; the frames should never be shut completely unless frost prevails, rather cover the glass with mats than close the lights entirely.

FRUITS UNDER GLASS.

By E. BUCKITT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

PEACHES AND NECTARINES.—Trees that furnished the earliest crops of Peaches and Nectarines are fast shedding their leaves, and when these have all fallen, the work of getting the house in readiness for forcing again may be commenced at once. A thorough cleansing of the roof, including the glass, is essential, but before this is commenced the branches should be tied up in large bunches and secured to the trelliswork. The pruning of the trees is one of the most important items. Aim at securing a well-balanced tree furnished with fruiting wood. The number of shoots to be removed will depend largely upon whether any were removed immediately after fruiting. Now that the branches are bare of leaves, superfluous growths may be cut out neatly and the tree generally examined. The pruning should be done with a sharp knife, making clean cuts, severing the shoots close to their origin, so that no unsightly snags are left. For large branches a small pruning saw should be used. If scale is present, the older parts of the trees may be scrubbed with a stiff brush, using an insecticide that has been warmed. Care must be exercised with the younger growth and buds; brush the branches well, and then apply Gishurst compound, which not only destroys insects but gives the trees a cleanly appearance. Remove the surface soil from the border and then apply a top-dressing of loam mixed with wood ashes, bone meal and lime rubble. If the trees are not making gross shoots a little artificial manure may be employed. Suckers are very troublesome, and should be traced as near as possible to their origin and removed with a sharp knife. The trees should afterwards be tied in position, laying in the old wood first. After the training is finished, the doors and ventilators should be opened until the time for forcing arrives.

THE VINERY.—Examine carefully and frequently Grapes in vinerias and in bottles for decayed or otherwise defective berries. Vines that will shortly have to be prepared again for forcing should have the bunches removed and the growths shortened, so that the basal buds may become plump. Give the house a vigorous syringing. Outside vine borders will, in the majority of cases, benefit by much more rain, so that the covering of these, which is generally necessary at this season, may be deferred for a time. Keep a sharp watch for vermin, especially rats. The amount of damage that these creatures will sometimes do in a single night is hardly credible.

THE ORCHID HOUSES.

By H. G. ALLEN, Esq., Orchid Grower to the Hon. Sir G. L. Bouverie, K.C., 1, J. L. West, abt., Gloucestershire.

IMPORTED PLANTS.—A striking proof of the ever-increasing popularity of Orchids may be found in the large quantities of these plants that are imported yearly from their native habitats. At this season large consignments arrive, but the specimens seldom present an inviting appearance. They are invariably much shrivelled, dirty looking, and, to the uninitiated, in such a general bad condition as to offer little hope of recovery. It is a mistake to start the plants into growth immediately they are received, although this is often done by those who have had little or no previous experience in their management. It should be borne in mind that the plants have been, perhaps, subjected for some considerable time to ill-usage, and any undue exposure to light, air, or warmth is almost certain to result in failure. All dead portions of leaves, pseudo-bulbs, and roots should be first removed, and the plants afterwards washed in some mild insecticide to free them from dirt and any insects that may be

present. Cool-growing kinds should be placed in a cool house, whilst an intermediate temperature will be better, to begin with, for the heat-loving kinds. In either case plenty of atmospheric moisture is necessary to get the leaves and pseudo-bulbs into a plump condition, and in order to do this it will be requisite to reduce the amount of ventilation and also to shade the houses on bright days. But on no account keep them in the dark or in a close and stagnant atmosphere. This plumping-up process may be effected in the case of nearly all pseudo-bulbous kinds by standing the plants on some material that absorbs moisture, such as a thin layer of *Sphagnum*-moss and partly-decayed leaves, but care must be taken not to keep the materials too wet, especially for the first week or so after the plants have been received. Orchids such as *Vandas*, *Acridies*, *Rexantharas*, and *Phalenopsis* are best suspended from the roof, to allow the growths to hang downwards, in which position no water can fodge in them after syringing, but they should not be allowed to remain in this way too long after the leaves have commenced to plump up, as they are best potted before the roots become too active. Having no pseudo-bulbs, they are very impatient of injury to their roots. *Cattleyas*, *Lælias*, *Oncidiums*, *Odontoglossums*, and other pseudo-bulbous kinds are best potted as soon as it is seen that the plants are sound and likely to grow. In potting newly-imported Orchids it is important to make them quite firm in their receptacles, for if they are so loose as to shake about when moved, the young roots may be injured. It is obviously necessary to pot the plants before the roots commence to grow, to prevent them being damaged through disturbance. If imported Orchids are encouraged in their first efforts at root-making, they will, in the majority of cases, soon become well established.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Gardener Foreman, Royal Gardens, Windsor.

BATAVIAN ENDIVE.—Batavian Endive should be planted in cold frames before the plants are too large to be removed without injury. Give a liberal application of clear water to settle the soil about the roots as soon as the plants are placed in position. Young plants may still be put out on a south border to furnish supplies for use in spring; they may need some protection during the winter. Plants which have grown to their full size should be tied up for blanching as required; the leaves will become blanched in a fortnight.

LATE POTATOS.—Let there be no delay in lifting this crop, as the recent showers have caused many of the tubers to make growth afresh, and, unless they are lifted at once, the quality will be impaired. If the tubers are allowed to remain on the ground for a few hours after they are dug, the skins will become hardened and the danger from sweating reduced somewhat. If sheds are available they may be placed under cover for a week or two when they should be sorted, placed in heaps in the open garden, and covered with clean straw previous to protecting them with a layer of soil 9 inches deep.

CELERY.—Continue to earth up the main crop of Celery whenever the foliage is dry. Remove all the side shoots previous to giving the plants a good soaking of clear water. In earthing up hold the foliage together carefully with some soft material until the soil is worked round the plants with the hand, breaking it as finely as possible. Take care that no soil falls between the leaves in the centres of the plants.

SPRING CABBAGE.—The second plantation of Cabbage should be made as early in the month as possible in order that the plants may become established before cold weather sets in. Let the ground chosen for this crop be in good heart, but no fresh manure should be applied, or the plants may become too tender to withstand the winter. If the ground has been dug recently it should be trodden before the plants are put out; drills may be drawn 15 inches apart, and the same space allowed between the plants in the row. If slugs are troublesome the ground may receive a good dressing of lime before the drills are formed, which, together with light dusting over the plants in early mornings, will keep them in check.

SPINACH.—The plants of the second sowing of this vegetable should be ready for thinning, an

operation that needs to be done before the plants become crowded and drawn, or the crop will be of little value; a distance of 2 inches should be allowed between the plants in the row. In order to promote the growth of large, healthy leaves give frequent light dustings of soot, and hoe the ground between the rows as often as circumstances will permit. The largest leaves should be gathered from the early sown plants, whether they are required for cooking or not, to encourage the growth of young fresh leaves. Old leaves that have lost their deep green colour are of no culinary value whatever.

TOMATOS.—Plants of Tomatoes in the open garden should be carefully watched in case of frost. Let the fruits be gathered as soon as they are coloured sufficiently, placing them in a cool storeroom, so that they may be kept in a good condition for as long as possible. Seeds should be sown to provide plants for fruiting early in spring. The seedlings should be placed as close to the roof-glass as possible to prevent them from becoming drawn. Pot the plants in 3-inch pots as soon as they are large enough to handle, and place them in a pit having a temperature of 55°. Give air freely as soon as they are established, and as long as it is possible to keep them stocky and not jointed.

ASPARAGUS.—Beds which will furnish the plants for forcing should be pricked over with a digging fork and receive a liberal watering. If the beds are raised above the level of the surroundings, the ground will be extra dry, and moisture will be especially necessary in order to plump up the crowns. As soon as the old stems are sufficiently ripe they should be removed from the bed. If early forcing is contemplated tree-leaves should be gathered as early as possible and placed in large heaps, in order to ferment before being placed in the forcing pit.

THE FLOWER GARDEN.

By R. P. LINDSAY, FRUITERER, in the East of Haddington, N. B. FRUITERER, East Lothian.

THE MIXED BORDER.—In my remarks this week and next I propose to deal with the mixed flower border. The term mixed border is applied to a variety of floral arrangements, and one of the advantages of this system of planting is that individual tastes may be secured without the gardener being considered old-fashioned. Provided ordinary attention is given and the colours of the various plants properly associated, no border of this kind can be a failure. If flowers are selected to provide a display for two or three months only, then it is possible to have a gorgeous show of colour at one time, but where it is essential that the blooming of the flowers should extend over a longer season the borders may be kept fairly gay at all times. The one kind demands as much labour, perhaps, as the other; the assumption that the mixed border of any kind may be left to take care of itself with just occasional attention is erroneous, for no other part of the flower garden demands more labour or unremitting attention. The preparation of the soil needs to be done most thoroughly, as it will be closely cropped at all times. But a thorough cultivation and enrichment of the soil are not enough by themselves, for during the period from March to September the plants must be assisted, as it is seen they need it, with surface dressings of artificial and other manures, as well as fresh compost. But besides all these, on the occasion of the annual tidying of the border in October, whether the whole border is to be replanted or only in part, a liberal dressing of well-rotted manure should be applied. Some believe that herbaceous plants are damaged by digging the borders close to the plants, but I have never found this to be the case. Roots that are destroyed by the spade can well be dispensed with by the plants, and where the clumps are very close together their removal may be regarded as in the nature of root-pruning. The question arises, how shall the border be arranged and of what shall it be composed? Besides hardy herbaceous perennials, hardy and half-hardy annuals and biennials, bulbs, and suffrutescent plants are all admissible. As a rule the plants may be grouped, but it is not imperative that all of them should be disposed thus. *Anemone japonica*, *Statiche latifolia*, *Astilbe Aruncus*, *Cimicifuga*, *Delphiniums*, *Tri-*

tomas, *Iris sibirica*, *Pæonies*, and *Funkias* may be planted singly as well as in groups. Nor need the rule be absolute in the case of those which are admittedly seen at their best in large masses; an odd plant of *Montbretia*, *Lilium*, and even *Michaelmas Daisy* does much to lighten the general effect of the whole. A suitable background is necessary. It may take the form of a high wall covered with climbers, a tall hedge of Yew closely trimmed, or a high trellis furnished with *Roses*. The width of the border may range from 7 to 15 feet: the wider it is, the greater is the variety of plants that may be included and better methods of arrangement may be adopted. In a wide border bays of considerable extent for planting low-growing subjects may be formed, and, while the general contour should be a slope from back to front, the slope need only be evident from either end, and never obtrusively apparent.

GENERAL WORK.—Any necessary trimming of permanent edgings and shrubs should be attended to at once. We have had frost at Tynninghame which has spoiled many flowers. These latter and the seed vessels have been removed. There has been a larger crop than usual this year of seeds of flowers and shrubs, and close attention is still required to gather as they ripen such as are required for next season. If the frost becomes severe, tender bulbous and tuberous-rooted plants, such as *Begonias* and *Cannas*, will need to be removed from the beds and dried preparatory to storing them. *Dahlias*, likewise, must be lifted under such circumstances and stored, unless it is intended to leave them in the ground until next season. Care must be taken to prevent damping amongst the stock of young bedding plants in the frames, removing dead and decaying foliage. The recent gales have disturbed many of the plants in the borders, and it will be advisable to examine the stakes and ties, making them secure again where such attention is needed.

THE HARDY FRUIT GARDEN.

By W. H. HARRISON, FRUITERER, in the East of Haddington, N. B. FRUITERER, East Lothian.

FRUIT GATHERING.—Fruits that are fit for gathering should be harvested before the autumn gales set in. Pears should be gathered immediately they are ready, and laid singly on the shelves in the fruit room. Late Pears should be handled carefully, as they are very susceptible to injury. Apples should not be placed more than two or three deep in layers. Quinces, Medlars, and nuts may be gathered shortly. Fruit that is already stored should be examined, and damaged or decayed ones removed.

PLANTING.—Preparations for the planting of the harder kinds of fruit trees should be commenced, as advised in a former calendar, taking into consideration the nature of the soil, sub-soil, and the situation. Damp, heavy soils may be improved by draining and working to lighten the texture. The ground is in an exceptionally favourable condition for planting, as it is warm and dry. When the soil may be worked freely, as at the present time, the fibrous roots are not so much injured during lifting and transplanting as when the ground is wet. Make the holes sufficiently wide to allow the roots to be spread out, avoid placing the latter too deeply, and never do the work when the soil is wet. Scatter some of the finer particles of the soil amongst the roots, and then tread gently in the hole with the feet. In exposed situations newly-planted trees should be secured to stakes to prevent disturbance by the wind, until the roots have taken a firm hold of the ground. Fruit trees that are lifted and planted carefully suffer little by their removal, but they should always be planted as soon as possible after being lifted, adequately protecting the roots meanwhile from the drying influences of cold currents of air.

WALL TREES. In almost every instance the wood of wall trees is ripening splendidly, but if, through the district being cold as in the more northern parts of the country, the shoots are not yet mature, every means should be employed towards securing that end. It is imperative that all useless growths be removed at once, to admit the sun and air to the shoots that remain. All vacant places on walls should be furnished with young, healthy trees. Before planting, the old soil should

be removed from the border, and replaced with fresh turfy loam. If the soil is of a clayey nature, very little, if any, manure should be added to it, but if it is sandy or gravelly, with a porous sub-soil, then a moderate proportion of well-decayed manure may be mixed with it. When planting fruit trees in heavy land, it is advisable to plant on mounds, raising a heap of soil a little above the level of the surroundings, but when planting in a gravelly staple, plant in a slight depression, so that the roots may obtain all the moisture possible. These are small, but important, points that make all the difference in success or otherwise in after years. By planting on hillocks less robust growth is made, and the wood in ordinary seasons ripens properly. Fruit trees growing in hungry, poor soils require a liberal treatment to induce them to make moderate growth, but, as a rule, they fruit freely, the wood being usually well ripened, although the individual fruits are not usually large.

THE APIARY.

By CHLOEUS.

PREPARATIONS FOR WINTER.—Very little artificial food should be required now, if the bees have received proper attention during September. As soon as possible take off the feeders, and, before putting on the quilts, place a few strips of wood, about half an inch thick, across the frames, to enable the bees to move from frame to frame for food without exposing themselves to the cold air in the bottom of the hive. Place a warm quilt over the frames, fitting each corner exactly; over this place two sheets of stout brown paper, and over all two or three good quilts. A cushion filled loosely with cork dust placed in the top of the hive ensures the bees being kept warm and snug all the winter. Sometimes Wheat or Oat chaff is used, at others sawdust, whilst dried leaves, free from all moisture, is an excellent material. The holes should be just large enough to admit only one bee at a time. The roofs of the hives should be made watertight. In many cases the wood has shrunken and cracked owing to the excessive heat. The cracks should be stopped with putty and the roof painted. After applying another coat of paint, some calico, or, better still, American cloth, should be stretched tightly across the roof, nailed securely along the edges, and then painted. The hives in general should be painted when the weather is suitable, and all cracks should be stopped in the same manner as those in the roof.

DRIVEN BEES.—Where bees may be obtained for the driving, bee-keepers should not lose the opportunity of utilizing them to strengthen existing colonies. Choose a warm day for the work, and, after dredging the new bees with flour or spraying them with peppermint water, smoke the old stock and treat all the bees on every comb similarly to the driven bees. They may then be united, first taking out the strange queen.

ISLE OF WIGHT DISEASE.—Generally speaking, the fine summer has ridded the country of this scourge. The Board of Agriculture, aided by the British Beekeepers' Association, have gained much valuable information about the complaint, and deserve the thanks of all bee-keepers. Dr. Lauder has discovered a parasite in the cell linings of the alimentary canal which causes malignant dysentery, so called because of its infective powers. Infection is due to spores which are discharged with the excrement. During the cold weather when the bees are unable to take their cleansing flights, the parasite grows and forms spores before killing the bees, but later, when the weather is warmer, the disease increases so rapidly that the bees often die before the spore stage is reached. The parasite has been named the *Nosema apis*. It is not considered that the disease is a new one, but the continued wet weather of the past few seasons has been the cause of the disease assuming an epidemic character. The experts seem to think that Paralysis, May pest, and the Isle of Wight disease are very closely related, although not quite the same. Badly-infected bees should be destroyed or treated as for foul brood. All feeders which have been in contact with diseased colonies should be thoroughly scalded and disinfected before being used again.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, and at early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, OCTOBER 9—
United Hort. Benefit & Prom. Soc. Com. meet.
TUESDAY, OCTOBER 10—
Roy. Hort. Soc. Autumn Frint Exp. (2 days). Horticultural Club Dinner and Meeting at 6 p.m.
WEDNESDAY, OCTOBER 11—
Affiliated Mut. Imp. Soc. Ann. Meet. at R.H.S. Hall, at 8 p.m.
THURSDAY, OCTOBER 12—
Soc. Nationale d'Hort. de France (Paris) Exh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—59°5'.

ACTUAL TEMPERATURES—
LONDON.—Wednesday, October 4 (6 P.M.): Max. 54° Min. 44°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, October 5 (10 A.M.): Bar. 29°5'; Temp. 55°; Weather—Dull.

PROVINCES.—Wednesday, October 4: Max 53° Doncaster; Min. 48° Ireland, S.W.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—
Dutch Bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 10.30.
TUESDAY AND WEDNESDAY—
Sale of Nursery Stock at Shortlands' Nurseries, Ash, Surrey, by order of M. & H. Sleet, by Protheroe & Morris, at 12.
WEDNESDAY—
390 cases Japanese Lilliums, miscellaneous bulbs, at 2; Palms and Plants, at 5; at 67 & 68, Cheap-side, E.C., by Protheroe & Morris.
THURSDAY—
Clearance Sale of 21,000 Roses at the West of England Rose Farm, Henlade, Taunton, by Protheroe & Morris, at 12.
FRIDAY—
Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

As the years pass, the interest in Alpine plants seems constantly to increase. No garden of any pretension is now without its "Alpine Garden," whilst many a suburban plot also possesses its rockery on which these most perverse of plants sometimes flourish exceedingly, in spite of all the apparent disadvantages of atmosphere and locality. It happens not seldom that the most successful cultivator is one who is bound by narrow limits of space; and the finest effects may be achieved, not on a rockery proper, but in shallow pans about 9 inches by 12 inches, in which the varied needs of soil, water, aspect and stone can all be readily satisfied. Such pans, when built up with appropriate material (and nothing looks better than pieces of the so-called Derbyshire "tufa"), enable the amateur to grow the very choicest Alpines with every chance of success. We have seen cushions of *Saxifraga valdensis* and *S. squarrosa*, not to mention *Eritrichium nanum*, and the more difficult species of *Androsace*, thriving in a measure to which they never attain when grown in the open rockery.

Such miniature "gardens" are specially adapted for rearing the spoils of a visit to the Alps, and anyone who has seen a plant of *Campanula Morettiana*, that most ex-

quisite species from the Dolomites, with little but a cluster of its bells showing between the tightly-wedged stones, can hardly fail to agree that the method is at least worth a trial.

There are many books which deal with the Flora of the Alps, and Mr. Thompson's volume* ought to rank high among them. The author knows his subject at first hand; and, moreover, he writes as a man who keeps one eye on botany and the other on the garden. His notes will be found useful to the traveller as well as to the stay-at-home cultivator who wishes to know something of the haunts and natural habits of his pets.

Mr. Thompson has not attempted to write a complete Flora, but rather has chosen—wisely, as we think—to emphasize those species which are of special interest from horticultural and other points of view. One could easily criticise omissions, but, after all, an author is entitled to ask for judgment on his work as a whole; and thus measured, Mr. Thompson's success is indisputable. The book contains many coloured plates, and the individual figures are for the most part good; although the colouring is often crude, and sometimes distinctly bad, for example, fig. 7, on plate xxv., where the tint of the petals of *Saxifraga aizoides* is represented as a rather violent red. Some of the figures of well-known species might also have been advantageously replaced by others of critical or less familiar forms.

Mr. Thompson gives useful hints on collecting the plants, but he does not include the mention of a sponge bag. We have found this simple contrivance of very great use, both in collecting and in transporting (in one's luggage) the smaller forms; and for most *Saxifragas* and *Sempervivums* it would be difficult to find a better. Sponge-bags are light, reasonably water-proof, and in every way more convenient than a tin. They can also be easily carried in a ruck-sack whilst the collector is on the mountains, where a vasculum often proves a decided nuisance, especially when a difficult bit of rock has to be traversed.

Nearly everyone who writes on Alpine plants has views with respect to their behaviour towards lime in the soil. Mr. Thompson has also something to say on the matter, and we do not find ourselves in complete agreement with him, although he is by no means unsupported by other authorities. For example, the common Ling (*Calluna vulgaris*) is really not, strictly speaking, a lime-hater. It is fairly common on the hillsides in the Dolomites, where it often grows mixed with *Erica carnea*, which affects calcareous soils. Closer investigation further shows that it is not merely an apparent congener, growing in such situations because a sufficient thickness of peat really separates it from the subsoil, as seems to be the case with *Rhododendron ferrugineum*, when this species also strays on to the calcareous slopes on which the allied species *R. hirsutum* is so common. It is, however,

well known that certain plants avoid calcareous soil in some districts, while they tolerate it in others. Perhaps it will be found that the presence or absence of some other mineral constituent, along with the lime in the soil, may provide a solution to riddles such as this.

The fact is that Alpine plants, more than most others, bristle with difficult problems for anyone who endeavours to generalize about them; and the gardener, no less than the botanist, is always liable to encounter the unexpected in his dealings with them.

Therein lies much of their charm. They are creatures of contradiction and waywardness, and he is emphatically not a wise man who thinks he has mastered all there is to know even about any one of them.

There were some good Rose blooms at the show arranged at the Crystal Palace by the Council of the Festival of Empire—the last exhibition for the season. It had been intended to hold this show at the end of August, but, owing to the drought of the past summer, it was wisely postponed to the end of September. As was the case at the autumn Rose show of the National Rose Society, the Teas and the flowers shown in the decorative classes proved the features of the show. Amongst the purely exhibition blooms, there were few Hybrid Perpetuals, excepting those contributed from Scotland and Ireland, and even the Hybrid Teas were not of first-rate quality, the result being that the boxes as a whole were wanting in colour. Nevertheless, Messrs. Cocker & Sons managed to secure the prize for the best bloom in the show with a flower of *Gloire de Chedane Guinousseau*, a Hybrid Perpetual introduced to commerce a few years ago, but which seems only recently to have come into general notice; while close beside it was a flower of the variety *Ben Cant*, in perfection of shape and colour, which, though not so large, was even more beautiful than the premier bloom. The colour also of the new Roses *Leslie Holland* and *Lieut. Chaires*, in Mr. Hugh Dickson's box, was welcome. This grower also had a very beautiful vase of the Countess of Shaftesbury; the flowers were a brilliant carmine, and shapely. Without criticising the award of the judges, who, doubtless, arrived at a correct conclusion in considering the merit of the individual flowers as exhibition blooms, this vase was, in a show somewhat deficient in colour, more pleasing than the vase of *Frau Karl Druschki*, to which it had to take second place. If the Rose will keep its colour in England—always a problem with Irish Roses—it ought to prove a valuable acquisition.

Many of the Roses in the exhibition boxes at the shows still bear evidence of a great deal too much "thumbing," by which we refer to the practice of pushing down the outer petals at right angles to the axis of the flower. This practice tends to reduce all the flowers to a uniform shape, and the beautiful imbrication of many varieties is

* *Alpine Plants of Europe, together with Cultural Hints*, by H. S. Thompson, F.L.S., with 64 coloured plates. (London: George Routledge & Sons, Ltd.)



THE PLEASANCE, OVERSTRAND, NORFOLK, THE PROPERTY OF LADY BATTERSEA.
THE WATER GARDEN AND ROSE-GARDEN.

thereby lost. The practice is one condemned alike by the trade and by amateurs, and the National Rose Society specially direct that a point should be deducted for an over-dressed bloom, but whether it be that the judges ignore the direction given them or that the penalty is insufficient to prevent it, the practice of "thumbing" still obtains. It is difficult to say what should be the remedy. Whilst we have often known the penalty enforced by judges, there is considerable difference of opinion as to what amounts to over-dressing. It would be inexpedient to make the penalty severe, for that would only lead to it being ignored altogether. A light yet sufficient penalty persistently enforced would soon put a stop to this in-artistic practice. Yet we know, from Mr. Gilbert, how much thought is required "to make the punishment fit the crime." Let us hope that better taste may gradually prevail.

It is satisfactory to notice that no tendency in this direction has yet appeared in the decorative classes. Considering the time of the year, the Roses staged in these classes were really good, and vases of Gottfried Keller, Rayon d'Or, Mrs. Alfred Tate, and the Lyons Rose had a wonderful effect in brightening the stands.

Messrs. Paul & Son staged the new single Rose Adrian Riversham, which looked fresh and pretty next to a vase of General Schablikine of unusually good form and colour for this Rose.

In the ladies' artistic section the most noticeable Rose was Lady Hillingdon; it appeared in many of the successful exhibits. There was also a very fine vase of Papillon and another of Kaiserin Augusta Victoria. Irish Elegance appeared in three out of the four prize-winning exhibits for table decorations. Another Rose that appeared in many of the ladies' exhibits and in nearly every box was Maman Cochet. There were two other new Roses that are likely to prove valuable. Mrs. George Shawyer, H.T., looked well, staged in two large vases, and Alexander Hill Gray appeared in more than one stand. Both varieties may make good garden Roses on further trial.

R.H.S. AUTUMN FRUIT SHOW.—The autumn show of British-grown fruits will be held in the Society's Hall, Vincent Square, Westminster, on Tuesday and Wednesday next, the 10th and 11th inst. The prospects for a successful exhibition are exceptionally favourable; Apples are especially plentiful this season, whilst Pears, although fewer in numbers, are of good quality. The hot season has suited most indoor fruits, and, judging by exhibits seen at the provincial shows, there should be good bunches of Grapes in the ten classes provided for them. There are also classes for Plums, Peaches, Nectarines, and Cherries; but the exhibition will be mainly one of Apples and Pears. On the opening day the Fruit and Vegetable, Orchard, and Floral Committees will meet to adjudicate on novelties submitted for award, but there will be no exhibition other than fruit. Fellows will be admitted at 1 p.m. on the first day and the public at 2 p.m.; the show will close at 6 p.m. on both days. The lecture announced to be given by Mr. H. HOOPER, on "Science and Practice—Their relation in Horticulture," has been postponed.

HORTICULTURAL CLUB.—The autumn session will commence on Tuesday next, October 10, when a house dinner will take place at 6 p.m. at the Hotel Windsor, Victoria Street, Westminster. After dinner Mr. C. P. RAFFELL, of the Royal Gardens, Kew, will give a lecture on "Rhododendrons." The lecture will be illustrated by lantern slides.

RETIREMENT OF MR. JOHN GARDNER.—After 43 years service as gardener at Elsham Hall, Lincolnshire, Mr. JOHN GARDNER has retired, having been granted a pension by his employer, Sir FRANCIS ASTLEY-CORBETT, Bart. Mr. GARDNER was born at Newent, in Gloucestershire, in 1833, and has been employed at, amongst other places, Stoke Edith Park, Powis Castle, and Little Aston Hall, Staffordshire, where for a period of 5½ years he was head gardener. He was also engaged for a period of 18 months in the Pine Apple Nursery of Messrs. ARTHUR HENDERSON & Co., at Maida Vale. Mr. GARDNER went to Elsham in 1868. He has practically re-made the pleasure grounds and planned and erected new ranges of glasshouses. In his earlier days Mr. GARDNER exhibited largely at the Yorkshire and Lincolnshire shows with success. Mr. GARDNER's son is gardener at Batsford Park.

AGRICULTURAL RETURNS, GREAT BRITAIN, 1911. The preliminary statement issued by the Board of Agriculture for 1911 contains the following items of special interest. The total acreage under all crops and grass shows a falling off as compared with 1910 of 51,272 acres, or a decrease of 0.2 per cent.; of this decrease, 20,766 acres is in arable, and the rest in grass land. The Wheat area shows a 5.4 increase, but Barley has been grown on 130,734 fewer acres than in 1910. There have been considerably larger areas under Beans and Buckwheat than in the previous year, the increase in Beans being 41,791 acres, and in Buckwheat, always a small crop in this country, 754 acres. Potatoes have been grown on 572,014 acres, which represent an increase of 6 per cent. The cultivation of small fruit and orchard produce shows no increase over last year. Flax shows an increase of 96.1 per cent., the acreage being 449, as compared with 229 last year. It is to be hoped that, with the attention the Development Commission is giving to this crop, something may be done to restore it to its former not unimportant position as a profitable crop.

AGRICULTURAL RETURNS, IRELAND, 1911.—The agricultural statistics issued by the Department of Agriculture for Ireland show that the total area under Corn and green crops represents a decrease in the current year of 22,213 acres, or 0.9 per cent., and that the area under green crops is 1,640 acres more than in 1910. As in Great Britain, Flax growing has increased very considerably, namely, from 45,974 acres in 1910 to 66,618 in 1911. The total area under fruit shows a marked increase, from 12,994 acres in 1910 to 14,045 in the present year—an increase of 8.1 per cent. The numbers of livestock show a considerable increase over those of 1910: horses, 3,087; cattle, 12,832; pigs, 215,114; and poultry, a truly remarkable increase of 1,108,786. The total numbers of poultry are for the present year 25,447,801.

"DEUTSCHLAND'S OBSTSORTEN."—Part 16 of this publication, which deals with the varieties of fruit trees grown in Germany, has just been issued. The work is issued by ECKSTEIN & STAHEL, of Stuttgart, under the joint editor-

ship of Messrs. F. MÜLLER, H. GRAU, and O. BISSMANN. Three parts are issued annually, and each part contains four large coloured plates and as many text figures. The varieties illustrated in Part 16 are the Pears:—Muskatelbirne, which is widely grown in Thuringen and Saxony; Clapp's Liebling (Clapp's Favourite), raised by THADDÆUS CLAPP, of Dorchester, Massachusetts; Stuttgarter Gaishirtle; Andenken an den Kongress, which was introduced by Mr. MOREL, of Lyons, and was named in consequence of the year of its introduction (1867) being that of the International Pomological Congress (Paris).

APPLES IN EGYPT.—A Canadian travelling in Egypt has written to the Dominion Department of Trade and Commerce to say that Apples in Egypt cost 2s. each, and to express the opinion that there is a splendid opportunity for Canadian Apples in the Levant. *The Canadian Horticulturist*.

THE EXPORTATION OF FRUIT FROM CANADA.

—The success of the exportation of Apples from Canada, has encouraged Canadian growers to seek European markets for other of their fruits. With the aid of the Government of the Dominion, experimental consignments of Peaches, Pears, Grapes, and Tomatoes have been sent to Britain, and have arrived in London, Glasgow, and elsewhere in excellent condition. Thanks to care in packing, to cold storage, and to continuous records of temperature during the journey, the difficulties of long-distance transport appear to have been so thoroughly overcome that Canadian Anjou Pears are to be bought in Birmingham.

IMPORTATIONS OF POTATOS IN SOUTH AFRICA.

—We are informed by the Board of Agriculture and Fisheries that new regulations are issued by the Government of the Union of South Africa, whereby Potatoes will be admitted from any part of the British Isles, provided that each consignment is accompanied by a declaration from the consignor stating where the Potatoes were grown, and also a certificate from the Board of Agriculture and Fisheries declaring that, so far as they are aware, no outbreak of wart disease (black scab) has occurred within a radius of five miles from the locality where the tubers were grown. Applicants for the Board's certificate must forward a declaration signed by the grower, stating where the Potatoes were grown and giving the name of the parish and county in which the farm is situated. The grower must also declare that no case of wart disease has occurred on his premises.

THE PRE-COOLING OF FRUIT.—The ungainly word "pre-cooling" is used in America to signify the exposure of picked fruit before shipment to low temperatures. However ungainly the word, there appears to be no doubt that the practice which it denotes is of the first importance to those who consign fruits to distant markets. Mr. J. A. RUDDICK, of Ottawa, Ontario, the Dominion Fruit and Cold Storage Commissioner, emphasises, in the course of a contribution to the *Canadian Horticulturist* (vol. xxxiv., No. 9, September, 1911), the importance of this preliminary pre-cooling treatment of fruit destined for long-distance shipment. He points out that, for early, quick-ripening Apples and tender fruit, the importance of reducing the temperature quickly after the fruit is packed is of paramount importance. If the pre-cooling treatment is omitted, fruit destined for exportation must be picked in a green state, and such fruit is found by experience to be inferior to that which is allowed to become more mature before it is picked, and is

* *Deutschland's Obstsorten*. Published by Eckstein & Stahle, Stuttgart. Three parts published per annum at 6 marks 50.

subjected at once to the cooling process. Pre-cooling is carried out in California by exposing fruit-laden cars in great refrigerators; but in Canada it is frequently carried out in the packing-house. In the former system, the laden cars are brought to the refrigerating plant and connected to the system so that a current of cold air is passed through the cars. With an adequate refrigeration power, the cooling is effected in from four to five hours. The advantage of the car-cooling system consists in the fact that, thereby, subsequent handling of the cooled packages and fluctuations of temperature therein are avoided.

ABERDEEN AND NORTH OF SCOTLAND COLLEGE OF AGRICULTURE.—At a meeting of the Governors of this college in the County Hall, Aberdeen, on the 21st ult., there was submitted a report by a sub-committee appointed to prepare an application for a grant from the Development Fund in connection with the purchase of the estate of Craibstone, situated near Aberdeen. The application is for £25,500: £18,500 for the purchase of the estate and £7,000 for the alterations and improvements. Sir JOHN STRUTHERS, head of the Scottish Education Department, has stated that, on the Aberdeen College providing one-fourth of the sum required for the purchase and equipment of the estate of Craibstone, the Governors may rely on the balance being provided—one-half by the Development Fund Commissioners and one-fourth by the Scottish Education Department. The sum which the local authorities in the north of Scotland will thus have to raise will be a little over £6,000. The grants now promised are not for forestry, nor agricultural research, but only for the equipment of an experimental farm and school of rural domestic economy. The assumption therefore is that the college will have a claim for further assistance.

ACREAGE UNDER HOPS.—In a return issued by the Board of Agriculture and Fisheries, the total acreage of Hops under cultivation in England is given as 33,056, compared with 32,386 in 1910, and 32,539 in 1909. In Kent there is a slight increase, the figures being for 1911, 20,191, and, for 1910, 20,078. Hereford comes next with 5,034 acres, which is a considerable increase on last year when the acreage was 4,987. Worcestershire, 3,061 acres; Sussex, 2,698 acres; and Hampshire, 1,444 acres, are other important Hop-growing counties.

PUBLICATIONS RECEIVED.—*Forestry for Women*, by C. O. Hanson. (Oxford Clarendon Press.) Price 5s net. *Links with the Past in the Plant World*, by A. C. Seward, M.A. (Cambridge: University Press.) Price 1s. net.

SCOTLAND.

GIFT OF LAND TO MOTHERWELL.

A PORTION of the Burgh Park, Motherwell, embracing about 2½ acres, has been leased to the town council by the Duke of Hamilton at the nominal rental of its agricultural value. The land has hitherto been held on a sub-lease from a farmer, who held it on lease from the Duke of Hamilton. The park is to be renamed the Duchess of Hamilton Park.

PRESENTATION AT DUMFRIES.

MR. W. YOUNG, who is relinquishing his post as gardener to the Crichton Royal Institution, Dumfries, for fresh duties in Ireland, was recently presented with a smoker's outfit by his fellow-gardeners and friends at a meeting held in the Queensberry Hotel, Dumfries. *Correspondent.*

THE PLEASAUNCE, OVERSTRAND.

(See figs. 115, 116, 117, and Supplementary Illustration.)

LADY BATTERSEA'S delightful garden at The Pleasaunce, Overstrand, is probably amongst the best known in the country, although it has been formed comparatively recently (the late Lord Battersea, I believe, bought the first portion of the estate in 1888). Cromer, Overstrand, and its surroundings are generally considered among the most beautiful and healthy seaside resorts on the east coast, and it would be difficult to imagine a more charming locality during the summer and early autumn months. But in winter and early spring the climatic conditions are anything but favourable to plant life, and fierce winds both from the north-west and the east cause great injury to vegetation. The gardens have an area of about 50 acres, and the planting has been carried out skilfully, the more tender subjects being effectually sheltered. In order to provide shelter, shrubs and trees have been planted thickly. The mansion is large and commands magnificent views of the country

several pergolas of great length, one of which is illustrated in fig. 116. Amongst the varied subjects I noticed *Vitis Coignetiae*, *V. Reine Olga*, *V. multiflora*, *V. flexuosa major*, *V. purpurea*, *V. Labrusca*, the sweet-scented vine, Grapes Black Cluster, Royal Muscadine, and Melton Constable; *Clematis flammula*, *C. Jackmannii*, *C. graveolens*, *C. purpurea elegans*, *C. Mrs. Hope*, *C. Belle of Woking*, *C. montana*, *C. m. rubens*, and *C. Countess of Onslow*; varieties of *Hedera*, *Lonicera*, and varieties of *Roses*. One pergola, 80 yards in length, was planted entirely with *Laburnums*.

A fine plant of *Wistaria multijuga*, in bush form, is reputed to be 350 years old; at the time of my visit the flowers were just past their best condition, but there was evidence of the plant having been a grand spectacle.

A "blue garden" was quite the best of its kind I have ever seen. Among the subjects employed were *Delphiniums* of sorts, *Anchusas* (these were very fine), *Veronicas*, *Centaureas*, *Larkspurs*, *Verbena Carter's Blue*, *Nemesia*, *Perennial Asters*, *Ceanothuses* of sorts, *Pul-*



FIG. 115.—THE PLEASAUNCE, NORFOLK, THE RESIDENCE OF LADY BATTERSEA.

and sea. The gardens are open to the public on Sunday afternoons during part of the summer and autumn months. A public road divides the pleasure grounds which are connected by a tunnel. The main entrance leads to the east front. Near the house is a handsome tower, with cloisters, and suitable plants about them. The shrubberies form a most important part of these charming gardens, the more common subjects being densely planted to provide windcreens. *Hippophae rhamnoides* (the Sea Buckthorn) flourishes luxuriantly, and fruits abundantly. I noticed various kinds of *Olearias*, especially *O. macrodonia*, *Phlomis fruticosa*, *Escallonia*, *Ceanothuses*, and other flowering shrubs, with a wealth of blossom. In one part of the garden there is a glade 130 yards long, planted principally with trees and shrubs of a golden tint, intermingled with purple-leaved plants, especially various kinds of Japanese and other Maples. Golden Elms, Prunuses, Parrotia, scarlet-foiled and other Oaks, Elders, purple *Berberis*, *Negundos*, *Cornuses*, *Aristotelia*, *Macqui*, and Golden Alnus form a beautiful combination of coloured leafage. There are

monaria cœrulea, blue *Violas*, *Echinops*, *Geraniums*, *Gladiolus Baron J. Hulot* and *Nepeta Mussini*. A sunken garden was another object of much beauty, and the various subjects were doing splendidly. Fine beds of *Lavender* in several varieties, *Heliotropes*, *Lobelia cardinalis*, and Ivy-leaved *Pelargoniums* were planted in large masses, the colours being harmoniously blended.

Walls were clothed with *Carpenteria californica*, *Sollya heterophylla*, *S. Drummondii*, *Corylopsis spicata*, *Abelia floribunda*, *Ceanothus*, *Indigofera*, *Stauntonia latifolia*, *S. hexaphylla*, *Clematis* of sorts, *Ivies*, *Escallonia*, *Jasminums*, and *Azara microphylla*.

The water garden (see Supplementary Illustration) in the centre of the grounds was constructed by the late Lord Battersea. It is somewhat extensive, is prettily planned, and contains a choice assortment of suitable plants. *Gunneras* and *Phormium tenax* were particularly fine. There were also *Bamboos* in variety, *Romneya Coulteri* (exceptionally fine), *Crinum Powellii alba*, hardy *Palms*, *Liberia formosa* (a very striking plant), *Senecios* of

sorts, Epimediums, large clumps of *Ericas*, *Clematis Davidiana*, *Cimicifugas*, *Hydrangeas*, *Veronicas*, many species of *Iris*. *Tencrium fruticosum*, *Cistus* of sorts, and, in the water, a fine collection of the newer *Nymphaeas*, including *N. gloriosa*, *N. odorata*, *N. rosea*, *N. Marliacea*, *N. carnea*, *N. lucida*, *N. Gladstoniana*, *N. Lay-ackeri*, *N. Robinsonii*, and *N. atropurpurea*.

Roses are cultivated largely at The Pleasaunce in two Rose gardens, one of which is shown in the Supplementary Illustration. One very striking bed, somewhat isolated from the rest, was planted with the variety *Leonie Lamerah*, which is very distinct in colour, and most beautiful in the bud stage. Near by, were nine large beds of well-known varieties, mixed. Planted amongst them were specimens of weeping Roses, with stems fully 8 feet in height, the varieties including *Longworth Rambler*, *Rugosa repens alba*, *Tea Rambler*, *Ruby Queen* (quite one of the best), *Lady Gay*, *Paul Transon*, *Mme. d'Arbly*, *Jersey Beauty*, *Hiawatha*, and *Dorothy Perkins*. The whole of the paths in this garden are laid with old stone paving. A Rose garden in another part of the grounds had been lately replanted and rearranged. The beds are cut in the turf, and each bed contains one variety only. They were planted with *Kaiserin Augusta Victoria*, *Frau Karl Druschki*, *Mme. Jules Grolez*, *Papa Gontier*, *Lady Roberts*, *Hugh Dickson*, *Mme. Lambard*, *White Maman Cochet*, *G. Nabonnand*, *Caroline Testout*, and *Lady Battersea* (the original plants of this fine variety), *General McArthur*, *The Lyon Warrior*, *Queen Mab*, *Richmond*, and *Mme Ravary*. The gardens contain hardy flower borders on an extensive scale, the principal one being known as the Tudor border (see fig. 117). This is arranged on either side of a path 9 or 10 feet in width, the length being 240 feet. The edging is composed of irregular, low rockwork, in which has been planted a variety of Alpines, among the most conspicuous being *Campanula bavarica*, *C. pusilla*, *C. p. alba*, *Gypsophila repens rosea*, *Armeria maritima*, *Aubrietias* in variety, *Achillea tomentosa*, *A. argentea*, *Dianthus deltoideus*, *Imopisidium acule*, *Helianthemums* in variety, *Sedums*, *Saxifragas* (a path of *S. hypnoides* Kingii measured 9 feet by 3 feet), *Thymus coccineus*, and *T. lanuginosus*. This edging is not only attractive and full of interest, but is also much to be preferred to other kinds, as it requires little labour to maintain it in a proper

order. Hardy herbaceous plants are established in bold masses, and due consideration is given to colour effect. Many of the best varieties of *Pyrethrum*, including *Jas. Kelway*, *Pink Pearl*, *Mrs. H. Barnett*, *Princesse de Metterniche*, *Empress Queen*, and *Karl Volt la Vistale* were ob-

In the fruit quarters hardy fruits looked particularly promising in almost all cases. Peaches and Nectarines do remarkably well outside on walls, the trees seldom failing to perfect fine crops. Nearly all the best-known sorts are cultivated, and the trees are well trained. I have



FIG. 117.—THE "TUDOR" BORDERS AT THE PLEASANCE, OVERSTRAND.

served also *Veronicas* in variety, *Anchusas*, *Trolliuses*, *Centranthuses*, *Erigeron "Quakeress"*, some of the best-named varieties of *Papaver orientalis*, *Chrysanthemum maximum*, *Potentillas*, *Galtonia candicans*, *Montbretias*, including the newer hybrids, many varieties of *Phlox*, *Harpallium rigidum*, *Liliums*, *Gypsophilas*, *Statice*, and other plants for autumn flowering, including a good and choice collection of *Michaelmas Daisies*. The borders were also furnished with *Dahlias*, summer-flowering *Chrysanthemums*, *Leptodermis Fraseri*, and many annuals.

not noticed a better crop of Apples elsewhere this season. The trees are in large numbers, and in a great variety. A few of the best sorts noticed were *Adams's Pearmain*, *Allington Pippin*, *Alfriston*, *Beauty of Bath*, *Bismarck*, *Blenheim Pippin*, *Cox's Pomona*, *Cox's Orange Pippin*, *Cumberland Favourite*, *Dumelow's Seedling*, *Domino*, *Emperor Alexander*, *Golden Spire*, *Gold Medal*, *Golden Noble*, *James Grieve*, *King of Tompkin's County*, *Lane's Prince Albert*, *Lord Burleigh*, *Newton Wonder*, *Norfolk Beauty*, *Peasgood's Nonesuch*, *Ribston Pippin*, *Rival*, *The Queen*, *Worcester Pearmain*, *Warner's King*, and *Yellow Ingestre*. *Standard*, *pyramid*, *espalier*, and *cordon* trees were alike in a satisfactory condition. Pear trees generally were carrying capital crops of clean fruit. The best included *Beurré Hardy*, *Catillac*, *Clapp's Favourite*, *Conference*, *Emile d'Heyst*, *Glou Morceau*, *Jargonelle*, *Louis Bonne* of *Jersey*, *Pitmaston Duchess*, *Williams's Bon Chrétien*, *Beurré Superfin*, *Doyenné du Comice*, *Josephine de Malines*, and *Beacon*. All kinds of bush fruits, including *Raspberries*, *Gooseberries*, *Currants*, and *Strawberries*, were seen in a high state of cultivation, and effectively protected from birds.

The kitchen garden is about 2 acres in extent, and is divided into several divisions. Here, as elsewhere, good culture and cleanliness were in evidence.

The glasshouses are not extensive, but increased accommodation is contemplated. There are sufficient houses for maintaining a good supply of plants for decorative purposes. *Melons*, *Cucumbers*, and *Tomatoes* are largely cultivated. On a well-kept cricket ground a large number of matches are played annually, many of them being important fixtures.

Mr. N. Naylor, the gardener, has held the appointment for about four years. He is to be congratulated on the manner in which he maintains the gardens and pleasure grounds. *Edwin Beckett.*



FIG. 116.—PLEASANCE, OVERSTRAND: ONE OF THE PERGOLAS.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

EDINBURGH AUTUMN SHOW.—With reference to the letter of *A. Galloway Gardener* appearing in your issue of 50th ult., I may say that the arrangement between this Society and the North British and Caledonian Railway Companies is, that within a radius of 60 miles from Edinburgh the companies will issue return tickets at single fare and a quarter for the double journey to persons intending to visit the show. These tickets are available to passengers travelling by ordinary trains. The Society has no arrangement with the companies regarding excursion trains from places outside the radius. For some years past, as your correspondent says, excursion trains have run from various places on the first day of the show, but the fact that they did not do so this year, while it is to be regretted, is not a breach of the understanding between the companies and the Society. I am communicating with the railway companies, with a view to getting them to run the excursion trains on the first day of the show. *Donald Mackenzie, Secretary Royal Caledonian Horticultural Society.*

THE SEASON AT ABBOTSBURY.—Many rare plants have flowered profusely in these gardens this season. The spring was noticeable for the profusion and extra quality of the blooms of hybrid Himalayan *Rhododendrons*, and also such species as *R. Thomsonii*, *R. cinnabarinum*, and *R. campylocarpum*, and the hybrids, such as *Kewense*, were very fine indeed. *Camellias* and *Azaleas* were also better than usual, and our large tree of *Acacia dealbata*, 70 feet high, was one mass of bloom. *Cassia corymbosa*, *C. schimifolia*, and *C. floribunda* all flowered freely in the open. A large plant of *C. corymbosa*, planted at the foot of a south wall, has been particularly beautiful. One of the most striking plants in bloom is *Lagerstromia indica*. The largest plant was originally intended as a climber, but it very soon reached the top of the wall, and is now a tree 25 feet to 30 feet high and fully 12 feet through. It has been in bloom for a long time. I estimate the number of flower-spikes at between 150 to 200. Another plant that has had, and still has, a few flowers on it is *Philecia buxifolia*, sometimes called the Creeping *Lapageria*. It has produced large numbers of the *Lapageria*-like blooms. Our largest specimen is more than 5 feet through, and the envy of all who see it. It needs to be planted in shade in a position facing north, and where it can have plenty of water. *Lapageria rosea* and its white variety have also flowered freely. *Buddleia paniculata* makes a beautiful dwarf bush about 4 feet high, and is covered with small rose-coloured spikes; *B. auriculata* is still uncommon, although the flowers are deliciously scented. Another late-flowering *Buddleia*, *B. Lindleyana*, is not particularly striking, but the blossoms are very pretty when examined closely. *Desfontainia spinosa* flowers very freely here in the young state. A plant of *Callistemon salignus albus* (the flowers are yellow) has been a gorgeous spectacle, covered with it bottle-brush flowers. *Magnolias* are still flowering, including *M. Thomsonii* and varieties of *M. grandiflora*. A tree of *M. Campbellii*, 60 feet high and with 160 blooms, was a sight not soon to be forgotten. *H. Kimpshall, Abbotbury Gardens.*

HIGHER EDUCATION.—Quite recently I came to reside in the north of England, where I find the education of gardeners is receiving the interest of public men, and a scheme for their advancement being formulated. The subject of education embraces many practical means whereby a young gardener may procure knowledge more readily; amongst them is *travel*, not necessarily abroad, but in the British Isles. I have considered various plans which might more or less successfully be advocated: foremost is the formation of a "National Guild of Gardeners," or "The Institute of British Gardeners," or "The Horticultural Labour Exchange." These three titles have been put forth by three great enthusiasts in the horticultural world, either of which would be a step in the right direction for the ultimate well-being of the fraternity. I have been in communication with the Rev. J. Bernard Hall, the Secretary of the North of England Horticultural Society, a gentleman who has the welfare of gar-

deners and gardening at heart, and who would be pleased to receive any suggestions from gardeners and horticulturists of all ranks, with a view to the formation of a National Society; names for membership or any offers of assistance to formulate such a scheme. Such an institution should include young gardeners, nursery employees, under and head gardeners, nurserymen, and as hon. members the wealthy friends of gardening. A nominal annual fee would be demanded from young men, and an annual subscription or a good donation from others to form the nucleus of a fund. The object to comprise—(a) A method whereby a young or under gardener might improve his knowledge by interchange of work with a fellow member, either in a nursery or a private establishment, viz., a young man after spending 1½ years or thereabouts in a southern county might exchange places with another member in the eastern, midland, or northern counties. In this matter no better opportunity could be afforded to gain an insight into different methods of forcing, floral work, hardy fruit cultivation, or any of the numerous branches appertaining to the profession. (b) Arrange for an annual conference in a different large centre annually. (c) If sufficiently supported to establish branches in all large centres, or at least a branch in each county. (d) Formulate a circulating library. (e) Arrange for lectures, correspondence classes, facilities for the preparation for examinations in order to qualify for important posts; these and other suggestions may be arranged for, and a staff appointed to organise and carry to a successful issue such a scheme as is herewith set forth, which would tend to promote horticulture generally to a higher level. *John Smith, County Council Lecturer and Instructor in Horticulture.*

LARGE PEACHES.—I am sending you a Peach of the variety *Salwey*, that weighed 18½ ounces when gathered. Several fruits on the same tree have turned the scale at 12 and 14 ounces. *George Brown, The Gardens, Brownsea Island, Poole.* [The fruit was a remarkably fine specimen and measured 13 inches in circumference. It had lost three-quarters of an ounce since it was weighed by Mr. Brown. We have only one larger fruit entered in our "Record Book," a specimen of Dr. Hogg, weighing 25½ ounces.—Ebs.]

AMPELOPSIS AND PULMONARY DISEASES.—In your "Answers to Correspondents" (see p. 216), there is a statement that you have never heard of any species of *Ampelopsis* causing pulmonary trouble. That is quite correct, and, so far as most of the species of *Vitis*, commonly known in gardens as *Ampelopsis*, are concerned, including the best-known and most useful *A. Veitchii* (*Vitis inconstans*), and the common *Virginia Creeper*, no other charge of a serious nature can be laid to their account. But the poisonous *Rhus Toxicodendron* is often called in gardens *Ampelopsis japonica*, and its dangerous properties have been frequently described in your pages. I have, on several occasions, seen the most serious consequence follow the handling of this plant, the latest instance being last year, when a gardener trimmed a large specimen of it which was growing against the house of his employer. Soon his arms, face, and other parts of his body began to swell, were very painful, and he had to lie up. His employer continued the work, and was similarly affected, and had to leave it until the gardener came back. By this time the so-called *Ampelopsis* began to be suspected; but the gardener finished the trimming of the shrub, and, in consequence, had another attack, from which he slowly recovered. The man is strong and healthy, but I think that, in the case of a weaker person or a child, the consequences might have been even more serious. Now if the poison from the plant is potent enough to cause swelling and cutaneous eruption, probably it is capable of affecting the internal organs. *Rhus Toxicodendron* is variable in the form of its leaves, but all the varieties are beautiful in autumn, when the foliage is coloured scarlet and yellow. The variety *radicans*, known in America as the *Poison Ivy*, is the form most commonly seen in gardens. In the *Gardeners' Chronicle*, July 23, 1892, p. 105, there are notes from Professor Sargent, who excuses his liking for this treacherous shrub on account of its

beauty. He remarks: "Yes, it poisons me badly, too." If a professor is content to get poisoned we cannot help it; but in these days when the public health stands foremost in our public administration, I think that the sale of this dangerous plant should be prohibited, or at least a notification of its danger given by the vendor to the purchaser. At the present time there are hundreds of unsuspecting persons endangered by the presence in gardens of this shrub. In the *Gardeners' Chronicle*, August 13, 1892, Mr. Chas. Noble gives an instance of poisoning by this shrub, and states that he has ordered the rooting up and burning of the whole stock. In the issue for September 12, 1891, p. 310, another case of blood poisoning from the same cause is noted, and your columns have frequent references to the subject. In view of these facts, I think it is time that prohibitive measures should be taken against this dangerous shrub. *James O'Brien, Harrow-on-the-Hill.*

GRAFT HYBRIDS.—In the interesting articles on graft hybrids which have recently appeared in these pages no mention was made of the fact that when the common *Laburnum* is budded with the golden-leaved variety (*Laburnum vulgare folius aureis*), even when the bud of the golden variety dies, the foliage of the common *Laburnum* stock assumes a yellow colour, similar to the variety, and this character is retained by the stock. This season I saw a number of plants of the common *Laburnum* which showed this phenomenon, in Mr. David W. Thomson's nursery at Windlestrawle, Edinburgh, and I understand the circumstance is well known in nursery practice here. *A. D. Richardson, Edinburgh.*

CALLIANTHEMUM "RUTÆFOLIUM."—The brilliant picture and description of *Callianthemum rutæfolium* in last week's issue make it quite certain that the plant described and figured is not *C. rutæfolium*, but the true and much rarer *C. anemonoides*. The habit, the pinkish colouring, every detail mentioned, all combine to give an accurate picture (to which the photograph adds the last touch) of *C. anemonoides*. I know acres of *C. rutæfolium* (Mont Cenis, Pastetzer, Schlern): this is a much inferior plant, it flowers later, above fully developed leaves, in June, and its flowers are not only smaller, relatively to the foliage, but smaller absolutely than those of *C. anemonoides*. And, always at all stages, they are of a rather chill dead-white, with a green eye. The stems are much taller, the habit foliose and almost coarse. *C. anemonoides* is not a variety, but a genuine species, from damp open places in the lower levels of the Tyrolean Pine woods; I have never collected it, but very well know its lovely little variety, *C. a. Kernerianum*, which occupies all the high turf of Monte Balde. This is merely a starved development of the type, and is represented with perfect accuracy by last week's plate of *C. "rutæfolium"*, if you imagine the tuft there densely to be reduced to a single crown. For, thusly as *C. a. Kernerianum* occupies the fine turf, it always does so in single plants only, and never grows on into the stout clumps characteristic of *C. anemonoides*. *C. rutæfolium* mats itself rather loosely, four or five crowns together, and is a plant of the grassy Alp, not of damp, stony places like *anemonoides*, or of the highest fine turf like *Kernerianum*. *Reginald Farrer.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

SEPTEMBER 26.—Present: Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Dr. A. B. Rendle, F.R.S., Dr. A. J. Voelcker, M.A., F.I.C., Sir Everard Im Thurn, K.C.B., J. T. Bennett-Poe, M.A., J. Fraser, F.L.S., J. W. Odell, J. O'Brien, V.M.H., E. M. Holmes, F.L.S., and F. J. Chittenden, F.L.S. (hon. sec.).

Oxalis Ortgiesii.—Mr. J. W. Odell showed a well-grown specimen of this Peruvian species from a cool house at Stanmore in a very floriferous condition. See *Gartenflora* (1875), t. 817.

Diseased plants.—Dr. VOELCKER showed specimens of *Celery* attacked by the fungus *Septoria petroselinii* var. *Apii*. This disease appears to be becoming increasingly prevalent each year, and, as pointed out earlier in the year in

the minutes of this Committee, a considerable number of samples of "seed" of Celery are attacked. Probably spraying with Bordeaux mixture or with potassium sulphide from early stages in the plant's growth onwards would keep the disease in check. Dr. Voelcker also showed cabbage leaves badly attacked by the fungus *Phyllosticta Brassicæ*, causing spotting of the leaves so as to render the plants useless.

Remarkable fruiting of *Egle sepiaria*.—Mr. BOWLES showed branches of *Egle sepiaria* fruiting remarkably abundantly. In most seasons in his garden the earliest flowers are staminate, followed a little later by some pistillate ones, some of which produce fruits, and the crop is a small one. This season, however, most of the flowers were hermaphrodite and practically all produced fruits.

Witches' Broom on Scots Fir.—A remarkable witches' broom on Scots Pine was sent by G. W. RICKERTS, Esq., of Foulis Court, Eastleigh. It was a dense growth about 12 inches in diameter. The growth was probably due in the first place to the attack on the tree of a species of *Æcidium*, and it had continued for several years, the leaves on the attacked portion being smaller in size than those on the normal shoots.

***Rubus innominatus* (S. Moore).**—Some fruiting shoots of this newly-introduced *Rubus*, from China, were shown by the Hon. VICARY GIBBS, under the name of *Rubus Kuntzeanus*. The fruits are insipid, small, and amber and black in colour. (See *Gardeners' Chronicle*, October 21, 1905, p. 290, where it is shown that these two names are synonymous.)

FESTIVAL OF EMPIRE ROSE SHOW.

SEPTEMBER 28, 29.—The autumn Rose show, arranged by the Festival of Empire at the Crystal Palace, Sydenham, was held on these dates. The entries were extremely good, especially in the nurserymen's classes. The classes for decorative Roses were not well contested.

The Gold Medal, offered for the best Rose in the show, was won by Messrs. J. COCKER & SONS, Aberdeen, with *Gloire de Chedane Guinoisseau* (see fig. 118). A beautiful stand of the lemon-yellow *Alexander Hill Gray* won for Messrs. A. DICKSON & SONS, LTD., the 1st prize in the class for any variety not in commerce before November, 1910. Mr. HUGH DICKSON, Belfast, was placed 1st for 12 distinct varieties, not offered before 1909, staging *Jonkheer J. L. Mock*, Mrs. A. E. COXHEAD, Lady A. STANLEY, Leslie HOLLAND, Lieut. CHAURE, Col. LECLERC, Chas. de la PIERCE, Marquise de GANAY, Mrs. HERBERT STEPHENS, Marchioness of WATERFORD, Miss CYNTHIA FORD, and Duchess of WELLINGTON. *Rayon d'Or* and Mrs. CORNWALLIS WEST were also shown well in the same class. In the decorative classes the variety *Lady Hillingdon* had quite unusual prominence. It figured in the premier vase of cut Roses, shown by Mrs. J. BIDE, Cowley Road, Uxbridge, and in the best basket of Roses, which was arranged by Mrs. G. W. COOK, Whetstone. It was noticeable in the button-holes and sprays, and was employed in the best of six dinner table decorations.

The most prominent Rose in the show was *Frau Karl Druschki*. This variety was shown by eight of 11 competitors in the class for 12 blooms of any H.P. or H.T. variety, and won the three prizes, the best flowers being sent by Messrs. A. DICKSON & SONS, LTD., Newtownards. It was again first, shown by Messrs. J. COCKER & SONS, Aberdeen, in the class for nine blooms of any Rose exhibited in a vase.

In the amateurs' class for 12 blooms of any Rose, the 1st and 2nd prizes were awarded for this variety, the exhibitors being Rev. J. H. PEMBERTON, Round House, Romford, and W. BOYES, Esq., Middleton, respectively. A corresponding and scarcely less-marked pre-eminence amongst Tea and Noisette varieties was shared by *Maman Cochet* and *White Maman Cochet*. In the class for 12 blooms *Maman Cochet*, shown by Messrs. D. PRIOR & SONS, Colchester, was placed 1st, and *White Maman Cochet* 2nd and 3rd, shown by Mr. G. PRINCE, Oxford, and Mr. H. DREW, Longworth, respectively. *White Maman Cochet*, shown by P. S. DAVIES, Esq., Burgess Hill, Sussex, was the best Rose in the amateur's class for five blooms of any variety shown in a vase.

The principal class for exhibition Roses, that

for 36 blooms, distinct, was contested by five exhibitors. The awards were:—1st, Messrs. J. COCKER & SONS, Aberdeen; 2nd, Messrs. ADAM & CRAIGMILE, Aberdeen; 3rd, Mr. HUGH DICKSON, Belfast; and 4th, Messrs. A. DICKSON & SONS, LTD., Newtownards. It was noteworthy that *Caroline Testout* and *Frau Karl Druschki* were shown by each exhibitor, and the *Lyons Rose* and C. J. Grahame were shown finely on the four winning stands. There were nine exhibits of 24 blooms, distinct, Messrs. D. PRIOR & SONS, Colchester, winning the 1st, and Mr. G. PRINCE, Oxford, the 2nd prize.

The class for 18 blooms, in which there were 10 competitors, included the finest individual blooms in the show. Mr. HUGH DICKSON, Belfast, was awarded the 1st prize, having a magnificent collection, including *Mme. Wagram*, *Lady Alice Stanley*, *Marquise de Ganay*, J. B. Clark,

Ernest Metz, *Souvenir de P. Notting*, W. R. Smith, *Molly S. Crawford*, *Mme. J. Gravereaux*, *Maman Cochet*, and *White Maman Cochet*. 2nd, Messrs. J. JEFFERIES & SON, Cirencester. In the corresponding class for 12 blooms Messrs. ADAM & CRAIGMILE, Aberdeen, won the 1st prize.

GROUPS OF DECORATIVE ROSES.

There were two classes for representative groups of cut Roses, the one limited to a space of 18 feet by 6 feet, the other to 60 square feet. The 1st prize in the former class was won by Messrs. W. & J. BROWN, Peterborough, and in the latter by Messrs. J. JEFFERIES & SON, LTD., Cirencester. Messrs. BROWN had a bold centrepiece of the *Lyons Rose* with fine columns of *Maman Cochet*, Mrs. A. WARD, Joseph HILL, Earl of WARWICK, and other sorts, relieved with *Polyantha Roses* and *Rose Hips*. Mr. J. MATTOCK, Oxford,



FIG. 118.—PREMIER ROSE BLOOM AT THE FESTIVAL OF EMPIRE ROSE SHOW, AWARDED THE GOLD MEDAL OFFERED BY MESSRS. CLAY AND SONS.

(The variety is *Gloire de Chedane Guinoisseau*.)

Hugh Dickson, *Cardinal*, and Mrs. David M'KEE, 2nd, Messrs. J. COCKER & SONS, Aberdeen, whose flowers included the best bloom in the show, the variety being *Gloire de C. Guinoisseau*. Mr. H. DREW, Longworth, was 1st in the class for 12 blooms.

Messrs. J. COCKER & SONS, Aberdeen, and Mr. HUGH DICKSON, Belfast, were 1st and 2nd respectively in both classes for 12 and 8 varieties, three blooms of each; whilst Messrs. S. TRESEDER & SON, Cardiff, and Messrs. D. PRIOR & SONS, Colchester, were placed 1st and 2nd respectively in the corresponding class for six varieties. Blooms of Tea and Noisette varieties were of fine quality, though rather small. The best 18 blooms were shown by Mr. G. PRINCE, Oxford, whose varieties included

exelled in the class for 24 varieties of decorative Roses, whilst Messrs. SPOONER & SON, Woking, were placed 1st in the corresponding class for 12 varieties, and Messrs. BEN CANT & SONS, Colchester, in the class for 12 dwarf *Polyantha Roses*.

AMATEURS' CLASSES.

The classes for amateurs followed the usual sub-division with sections according to the number of plants grown by exhibitors. The larger classes were weakly contested, and the keenest competition was seen in the classes for six exhibition blooms shown by growers of fewer than 500 and 1,000 plants. In the open section the best 24 exhibition blooms were shown by CONWAY JONES, Esq., Gloucester; 2nd, Rev. J. H. PEMBERTON. G. A. HAMMOND, Esq., Burgess

Hill, Sussex, had the winning collection of 12 blooms, and the Rev. J. H. PEMBERTON the best 36 blooms in 12 varieties. Mr. JONES was also 1st in the class for 18 Teas and Noisettes. In the section for growers of fewer than 2,000 plants, F. SLAUGHTER, Esq., Steyning, and RAMON DE ESCOFFET, Esq., Kingsley Dene, Dulwich, were the principal winners, whilst E. B. LEHMANN, Esq., Ifield Lodge, Crawley, was the most successful exhibitor in the classes for growers of fewer than 1,000 blooms.

NON-COMPETITIVE EXHIBITS.

MESSRS. JAMES CARTER & Co., Raynes Park, made an effective display of China Asters and Dahlias. (Gold Medal.) A Gold Medal was awarded to Messrs. SEABROOK & SONS, Chelmsford, for an exhibit of Apples and Pears. Messrs. H. B. MAY & SONS, Dyson's Lane, Edmonstone, showed Ferns, and Mr. J. Box, Lindfield, a very fine group of early-flowering Chrysanthemums, Phloxes, Delphiniums and other border plants.

NATIONAL CHRYSANTHEMUM.

OCTOBER 4, 5.—The early autumn exhibition of this Society was held at the Crystal Palace on these dates. Whilst the number of entries was below the average, in the majority of instances there was no falling off in the quality of the flowers shown. Sixteen new varieties were submitted to the Floral Committee, and of these four received certificates and three were commended. As usual, Mr. CASELTON, Superintendent of the Crystal Palace Gardens, contributed to the general effectiveness of the exhibition by staging well-grown pot plants.

OPEN CLASSES.

There was only one exhibitor in the premier class for a display of Chrysanthemums and foliage plants in pots. It was exhibited by Mr. J. BRAZIER, The Nurseries, Caterham, and was a rather crude arrangement, although it contained some well-flowered Chrysanthemums. The foliage plants did not add to the general effect. The 1st prize for 12 Japanese blooms was won by A. TATE, Esq., Downs, Leatherhead (gr. Mr. W. Mease), for a selection of blooms which, although lacking in depth, were almost too broad for the show board. White Queen was the best bloom shown. The class for six Japanese blooms was disappointing, but the 1st prize exhibit from A. F. BLADES, Esq., Rookfield, Reigate (gr. Mr. F. Cordell), was distinctly superior to the other exhibits. Only one exhibit was staged in the class for 12 bunches of early-flowering Pompon varieties. The collection exhibited by Mr. J. SMELLIE, Pangsy Gardens, Busby, Glasgow, contained a good selection, of which Scarlet Gem, Early Blush, and Bronze Bride were the most attractive. The 1st prize collection of 12 bunches, distinct, grown in the open air, and not disbudbed, also from Mr. SMELLIE, was astonishingly fine. The fresh blooms of rich colours made a striking display. Leslie, rich yellow; Lillie, pink; and Caledonia, white, are three excellent varieties. Disbudbed blooms, from plants grown in the open, did not make a good show, and from a decorative point of view were decidedly inferior to those grown more naturally. The 1st prize was awarded to Mr. W. A. BALLARD, Abbey Lane, Leicester.

Mr. J. SMELLIE won the 1st prizes in the classes for six bunches of early-flowering Pompons and six bunches of early-flowering Japanese or decorative varieties. A. TATE, Esq., won the 1st prize for a vase of three Japanese Chrysanthemums with immense blooms of White Queen. No fewer than four competitors, including Mr. C. FOX, who won the 2nd prize, staged this variety.

The vases of single-flowered Chrysanthemums were indifferently arranged, and Mr. BRAZIER's hand-basket of blooms and foliage, though containing fresh flowers of more than average quality, was decidedly too large. The same remark applies to the hand-baskets of hardy autumn foliage and berries. The 1st prize was deservedly awarded to Mrs. W. MOSTIN, for a bright and tastefully-arranged basket containing coloured sprays of Pear leaves, Barberry and several varieties of *Pernettya mucronata*.

AMATEURS' CLASSES.

The epergne offered for the best dinner-table decoration was won by R. GIRVIN, Esq., Ashbourne, Sydenham (gr. Mr. J. W. Harrison), for a neat arrangement. The large Silver Medal was awarded to Mrs. W. MOSTIN, Addlestone, Surrey, for a yellow and white arrangement which would not be so effective under artificial light.

There was a great disparity between the 1st prize exhibit shown by Mr. C. FOX, 12, Linden Gardens, Tunbridge Wells, and the other exhibits in the class for six bunches of early-flowering Chrysanthemums.

DECORATIVE CLASSES.

The only exhibitor (Mr. F. BRAZIER, The Nurseries, Caterham) in the class requiring a table of bouquets and other floral arrangements, composed of Chrysanthemum blooms, received the 1st prize for a conventional display. There were eight decorated dinner tables, and with one exception yellow and red (or bronze) Chrysanthemums with appropriate foliage were employed. Mrs. A. ROBINSON, Norhyrst, Carshalton, won the 1st prize, for an arrangement in which the berried sprays of Barberry added brightness.

Epergnes of Chrysanthemums proved a popular class. The premier arrangement from Mr. A. W. TROSSELL, 12, The Parade, Beckenham, would

Daisies, tastefully arranged with Palms and brightly-coloured sprays of Barberry and Feony growths with brilliant autumn colour. The Chrysanthemums included very fine blooms of White Queen, the golden David Ingalms, and Norman Davis, which has bronzy-yellow florets. This exhibit was set off by a good border of Asparagus in pots, and cut fronds of such Ferns as Woodwardia radicans.

Mr. H. J. JONES, Ryecliff Nursery, Hither Green, contributed a group of Chrysanthemums, Michaelmas Daisies and a few Phloxes. The large Japanese Chrysanthemum White Queen was shown in splendid condition, and the small-flowered Rio des Blancs was also noteworthy. (Small Gold Medal.)

A display of various Chrysanthemums, Carnations, Phloxes, and other flowers, arranged by Messrs. W. WELLS & Co., Merstham, Surrey, made a very bright show. (Small Gold Medal.)

Silver-gilt Medals were awarded to Messrs. J. CARTER & Co., Raynes Park, for a circular display of Dahlias and other flowers artistically arranged, and to Messrs. W. SEABROOK & SONS, Chelmsford, for a collection of Apples and Pears.

Silver Medals were awarded to Messrs. DAVID RUSSELL & SONS, Brentwood, for a group of ornamental trees and shrubs; Mr. FRANK BRAZIER, Caterham, for Michaelmas Daisies; Messrs. CRAIG, HARRISON & CRAIG, Heston, Middlesex, for Chrysanthemums; Messrs. J. CHEAL & SONS, Crawley, for an attractive display of autumn foliage and berries; and Mr. J. B. RIDING, Chingford, for Collarette Dahlias. Messrs. JAMES CARTER & Co. staged an interesting collection of dwarfed Japanese trees and other plants, which included such uncommon subjects as *Cephalotaxus drupacea fastigiata*, pans of a Bamboo only a few inches high, *Euonymus*, and a species of *Carpinus*.

Obituary.



THE LATE WILLIAM EARLEY.

have been better without the huge spray of *Asparagus plumosus*, which gave it a one-sided appearance.

Mrs. McDOWELL NATHAN, Little Heath Wood, Potter's Bar (gr. Mr. W. H. Newton), arranged the most attractive vase of single Chrysanthemums grown in the open air.

AWARDS.

FIRST-CLASS CERTIFICATE.

Chrysanthemum "Bronze Goacher," shown by Messrs. WELLS & Co., Merstham.

C. Miss E. Finch.—A single Chrysanthemum of terra-cotta colour, shown by Mr. F. BRAZIER, Caterham.

C. Emperor.—A decorative variety of bright crimson colour with golden reverse. This and an ivory-white variety to be renamed, which also received a Certificate, were shown by Messrs. LOWE & SHAWYER, Uxbridge.

The following varieties were Commended:—"Roundabout," a decorative variety of golden bronze colour; "Phoebe," a large Japanese bloom with broad florets of silvery-pink colour, both shown by Mr. H. W. THORP, Worthing; and "Eskimo," a creamy-white decorative variety shown by Messrs. LOWE & SHAWYER.

NON-COMPETITIVE EXHIBITS.

A large Gold Medal was awarded to Mr. NORMAN DAVIS, Framfield, Sussex, for a very attractive display of Chrysanthemums and Michaelmas

WILLIAM EARLEY.—It was with feelings of profound sorrow that I learned of the death, after a short illness, of my old friend William Earley, which took place at his residence, Northampton Road, Addiscombe, Croydon, on the 27th ult. Mr. Earley, who had attained his 76th year, was one of the old school of gardeners, who were in practice 40 years ago. Mr. Earley was for many years head gardener at Digsell House, Welwyn, and the well-known Digsell Endive was of his raising. Later, he was gardener at Valentines, Ilford. During the Royal Horticultural Society's days at South Kensington, Mr. Earley was a member of the Fruit and Vegetable Committee. For 38 years he held the post of Gardening Editor to *Lloyd's Weekly Newspaper*, in succession to the late Mr. George Glenny, and during that long period has never failed to supply his customary weekly contributions. That is a remarkable record, and is probably approached more nearly by nobody other than myself, for I have had an exactly similar experience with *Reynold's Newspaper* for 31 years. It was a singular circumstance, and one which would seem to indicate premonition that, but a few weeks since, after some 10 or 12 years of silence between us, I was induced to write Mr. Earley through *Lloyd's News*, not knowing his address. As recently as September 11 he sent me a very cheery reply, full of good feeling and recalling a friendship which began fully 40 years ago. He said, "I have lately found it a tax leaving home to visit shows, undertakes, judging, and similar engagements, and so I have made up my mind to enjoy myself more and more at home. Still, am no less an enthusiast in horticulture." His older gardening instincts led him to deprecate the present common practice of setting up crowded groups at shows, and made him long for a return to exhibits of the noble specimens of his younger days. Referring to his garden editorial experiences on *Lloyd's News*, Mr. Earley wrote, "Here again the change is felt, as for many years I had to answer very simple questions in the correspondence. To-day, amateurs send most difficult questions, thus showing how great has been the growth of horticultural interest. Not a few want private replies making on one a severe tax." The letter concludes with the wish, alas! now never to be realised, "Let us hope we may meet at some future function." In the days of the old

International Potato Exhibitions Mr. Earley was an active and earnest member of the committee. He was a really good gardener of what would now be termed, perhaps lightly, the old school, but all his writings show him to have been a well read, as well as a practical gardener. Whilst largely unknown to a younger generation, there are yet some old contemporaries living who will remember our friend, and learn of his death with regret. His latest contribution to *Lloyd's News* appeared so recently as Saturday last—a posthumous production! For several years, from about 1864 onwards, Mr. Earley contributed a weekly Calendar of garden operations to the *Gardeners' Chronicle*, and in the early seventies published, through Messrs. Bradbury, Evans and Co., some useful little manuals entitled "How to Grow Mushrooms," "How to Grow Asparagus," "The Cottage Gardener's Guide," and last and most important of all, "High-class Kitchen Gardening," which his friends used to describe as his *magnum opus*. A. D.

FRANCIS O. CANNING.—The death, on September 1 of Mr. Canning, aged 44, of Villa Nova, Pennsylvania, from accidental poisoning by Mushrooms, is announced in the American gardening papers. Mr. Canning served his apprenticeship in the gardens of the Duke of Rutland at Belvoir Castle, Grantham. He emigrated to America 22 years ago, and for six years was in charge of the propagating and plant houses at Fairmount Park, Philadelphia. He was next engaged as superintendent of S. T. Bodine's estate at Villa Nova, and, after serving there some six or seven years, was appointed instructor in horticulture at the Massachusetts Agricultural College, which position he held for four years, returning to Mr. Bodine's employ in the same capacity as before.

CLEMENT DENAÏFFE.—It is with regret that we learn of the death of Mr. Clément Denaiffe, the head of the firm of seedsmen at Carignan (Ardennes). Mr. Denaiffe, who was 76 years of age, had achieved a world-wide reputation as a raiser of new varieties of plants.

JAMES ALEXANDER.—Mr. James Alexander, of the firm of Messrs. Alexander & B. Seedsmen, High Street, Perth, died on Friday, 15th ult., at his residence, Balhearty, Perth. Mr. Alexander, who was in his 57th year, had been ailing for some time from heart affection. He went to Perth 20 years ago in the service of Messrs. Dickson & Turnbull, nurserymen and seedsmen, and six years later, with Mr. Alfred W. Brown, commenced business as a seedman and bulb importer.

JOB ELLETTSON. Job Ellettson, florist and landscape gardener of Auburn, New York, died on August 17. He was a native of Yorkshire, and was born in 1833, his father being head gardener. After serving his apprenticeship and working as a journeyman he emigrated to America, and settled in Auburn in the early 50's.

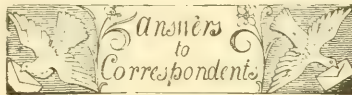
JOHN FLOOD. Mr. John Flood, who was at one time engaged in the seed department of Messrs. James Veitch & Sons, Chelsea, died recently at Woburn, Massachusetts, U.S.A. He settled in America 14 years ago, and worked in some of the largest seed houses in the country, ultimately engaging in business for himself at Montvale.

JOSEPH R. FREEMAN.—Mr. Joseph R. Freeman, nurseryman, Washington, U.S.A., died on August 22. He was a native of England, and emigrated to America 48 years ago. He built up a prosperous business in the country of his adoption, and became vice-president of the Society of American Florists.

JOHN LEAVY. John Leavy, a native of Ireland, died at Creely, Colorado, U.S.A., on September 1, in his 81st year. He was one of the founders of the town of Creely, where he was engaged in business as a florist.

SCHEDULE RECEIVED.

Huntingdonshire Daffodil and Spring Flower Show. Exhibition, to be held at Huntingdon, on Thursday, April 18, 1912. Hon. secretary, Miss Linton, Surtloe House, Buckden, Huntingdon.



•• The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

BOWLING GREENS. *Reply to a proposed method of ridding your green of Plantains and other weeds is undoubtedly the best.* Hand-weeding may seem a slow process, but it is a sure one if the operation is methodically and thoroughly performed. The weeding and winter dressing might well be executed simultaneously. Mark out a portion of the lawn to be first treated by stretching a garden line across the green parallel with one side and 1 yard from the edge. All the weeds should be removed, and the broken places patched with fresh turf. Give the surface a dressing of fine bonemeal at the rate of 1 lb. per square yard, then apply fine, clean, sharp sand to level up any inequalities. By this method the progress of the work can be seen and no part missed. There is no special merit in sea sand, beyond that it is usually more uniform in grade and cleaner than pit sand. The chief value of sand on bowling greens is its suitability as a medium for levelling up inequalities which may form during the playing season, and on clayey soils to prevent the surface from caking. Further in rolling the sharp particles of sand are crushed into the fleshy crowned weeds, such as Daisies and Plantains, thus tending to exterminate them, and so improve the greens for playing. Regarding the best manure to apply for autumn dressing, we do not advise the use of any beyond the bonemeal already mentioned, though many employ dried blood and prepared fish manures. It is inadvisable to apply nitrogenous manures just previous to winter, these being more efficacious when applied in the spring. Stimulating manures of that description must be applied with great discretion. Two light dressings at intervals are better than one moderately heavy one. One to two ounces of chemical manure per square yard is amply sufficient for a bowling green, for while it is advantageous to have a thick sward of grass, it is most undesirable to have it growing like a crop of hay, hence the necessity for caution in the application of manures. To assist in the easy application and even distribution of artificial manures mix them thoroughly with three or four times their bulk of sand. Brush in the mixture with a flat brush down towards the operator as in light raking. Roll the turf with a roller of medium weight after rain. Local conditions are an important factor in all operations, and these must be studied closely in the management of bowling greens.

CORRECTION.—In the reply to *H. Jones and Young Gardener* in the last issue on making a vine border, the amount of $\frac{3}{4}$ inch bones and old mortar rubble should have read 1 cwt. each to every five loads of loam.

GROWING UNDER GLASS. *By H. J.* Seeing that your Tomatoes were satisfactory, there would appear to be no reason for changing the crop. However, should your glasshouses be adapted to Cucurbit growing, say from 12 feet to 15 feet wide and efficiently heated, it would be advisable to grow Cucumbers in the early part of the year, following with Tomatoes at the middle or end of July. In your case the cultivation of flowers would pay better than vegetables for marketing. The following kinds of herbaceous perennials would not need a ready sale when well grown and presented at the shops in good form, namely, *Achillea Ptarmica*, *The Pearl*, *A. p. plena*, *Aquilegia scerulea*, *Delphiniums*, *Galea officinalis*, *G. Her Majesty*, *G. Hartlandii*, *G. Niobe*; *Gaillardias* in variety, *Gypsophila paniculata alba*, *Helenium autumnale superbum*, *Helianthus rigidus* Miss Mellich, *Coreopsis grandiflora*, *Scabiosa caucasica*, *Thalictrum aquilegifolium*, *Solidago flexuosa*, white, scarlet, purple, and salmon-pink coloured *Phloxes*, *Pyrethrums*, both double and single varieties of distinct and

pleasing shades of colour; *Chrysanthemum* King Edward VII. (sometimes known as Giant Moon Daisy), *C. Li Hung Chang*, *C. Lord Roberts*, *C. maximum grandiflora*, *Irises*, *Daffodils*, and *Montbretias* in variety. Hardy and half-hardy annuals of the following kinds may also be included: *Centaurea odorata Imperialis*, *C. Chameleon*, *C. alba*, *Sweet Scabious* in variety, *Mignonette*, tall-growing varieties of *Asters*, *Stocks*, *Iceland* and *Shirley Poppies*, and *Sweet Peas*. It will be wise to grow in quantity the kinds of flowers which are most in demand, including a good planting of *Statice sinensis*, *S. sinuata*, and *S. Bonduellii*. Early, mid-season, and late-flowering *Chrysanthemums* of the best varieties should also be grown in considerable quantity. The flower you enclosed to be named is *Trachelium coruleum*.

CULTURE OF SONERILAS, LOTUS, AND CEROPEGIAS: *W. Garwood.* Sonerilas require to be grown in a high temperature under stove conditions. Cuttings root easily in spring, and the plants should be grown on in a compost of leaf-mould, loam, sand, and charcoal mixed in equal proportions. Afford water at the roots sparingly until the plants are well established, but take care not to allow them to become too dry. Afterwards feeding them liberally with a weak solution of cow-manure until the flowers appear. These are usually rose-coloured and highly decorative, lasting from some weeks if kept in an intermediate temperature. The Lotus (*Nelumbium speciosum*) is an aquatic plant during its growing period, which extends from early spring until late autumn, and during that period should be placed in a sunny place in a warm greenhouse or stove. A large tub will be suitable for the requirements of this plant, but if a heated tank is available so much the better. The compost should consist of rich turfy loam mixed with one-third its bulk of cow-manure and a good sprinkling of sand. The water should be constantly changed, so as to avoid a stagnant condition at the roots. After growth has ceased in autumn the water should be run off, and the rhizomes stored in a temperature of 50° to 55° F., taking care that the soil in which they are resting does not become quite dry during the winter. Certain species of *Ceropegia* require greenhouse treatment and others the hot atmosphere of a stove. The species which require a greenhouse, such as *C. dichotoma* and *C. fusca*, should be potted in rather small pots employing a compost of loam two parts, peat one part, and sand one part. Press the compost moderately firmly. Stand the plants in a sunny place in the greenhouse, and afford plenty of water at the roots during summer, when the plants are making their growth. As a guide, water only when the fleshy stems show slight evidence of shrivelling. The tropical and sub-tropical species are mostly climbers, and thrive best in an intermediate or stove temperature. Most of the species in cultivation, of which there are now about 30, are included in this class. A mixture of loam, peat (or leaf mould), sand, and charcoal in equal proportions suits them well, and the young growths, which are slender and twining in habit, should be trained up strings near to the roof-glass or over a trellis. The flowers are usually produced in abundance, and present extraordinary diversity in both their colouring and form. Beyond a slightly lower temperature during the winter months *Ceropegias* require no rest, as most of them continue growing during the whole year. See also note on *Ceropegia Sandersonii* in last issue, p. 249.

CYANIDING A VINEY: *H. J.* It is desirable to wait until the Grapes are cut and then give the house a thorough cleansing. If you employ cyanide of potassium, you must exercise great care, as it is a virulent poison.

INSECT: *J. B. W.* The arthropod sent is one of the pseudo-scorpions or false scorpions, and is known as *Chelifer geoffroyi* (Koch). It is found throughout Europe. The insect is harmless and lives in damp and moist places, and feeds on mites and woodlice.

LETTUCE ROOTS: *G. F. M.* The Aphid sent on the Lettuce root is known as *Pemphigus lactucarius* of Passerini. It is common on light sandy soils on many roots, and it also makes cavities in the earth.

LINNEAN SOCIETY: A. R. R. No examination is required for admission to Fellowship of the Linnean Society. Every candidate must be proposed by three or more Fellows, who shall state his qualifications, name in full, rank, profession, and residence. Before a candidate is proposed, it is the duty of the proposer to make known to him that, if elected, he cannot be admitted until he shall have paid the admission fee of £6, and one annual contribution of £3, and he may compound at any time by one payment of £45, in lieu of all future annual subscriptions; but if he be not usually resident in Britain, the composition of £45 must at once be paid, or an order given upon a London agent for the payment of the annual subscriptions as they become due. Every person elected a Fellow is required to appear personally to be admitted within six months after his election, or within such further time as the council may grant. Annual contributions become due in advance on the 24th of May for the year ending on that day; but no Fellow elected on or after the 1st of March in any year is required to pay a second annual contribution in the same year. The general meetings of the Society are appointed to be held on the third Thursday in January, the first and third Thursdays in February, March, and April (no meeting is held in the week before or after Easter), the first Thursday in May, and on the first and third Thursdays in June, November, and December. Any member may introduce a friend by inscribing his name in the list of visitors.

MEALY BUG ON VINES: W. H. H. As soon as the vines have shed their foliage prune the lateral growths back in the ordinary way, and then remove all the loose bark from the individual rods and spurs; burning the prunings and bark thus removed. Next wash the vines with soapy water made by dissolving 4 lb. soft soap in one gallon of hot water. Keep the mixture well stirred, and apply it with a stiff brush to every portion of the vine. After this has been done smear the vines thoroughly with a mixture of coal-tar and clay, consisting of one part of the former to nine parts of the latter. The clay should be dried and powdered, so that it may be passed through a 4-inch sieve. Measure the pulverised clay into a large flower-pot (having a lump of stiffish clay put into the hole in the bottom), using a 3-inch flower-pot as a measure. Put the measure of tar into the vessel after the specified quantity of clay has been deposited therein. Work the mixture well together, afterwards adding sufficient boiling water to give it the consistency of ordinary paint and applying it to the affected vines, as indicated above, with a stiff paint brush, keeping the mixture well stirred meanwhile. Prior to doing this the glass and woodwork of theinery should be well washed with soft soapy water, and the plaster and brickwork close down to the vine border with hot liquid lime. This done, replace the loose surface soil with new compost, following with a surface dressing of horse-droppings and a good watering at the roots. The vines may be allowed to "break" into growth of their own accord in February or early in March.

NAMES OF FRUITS: Dr. K. French Crab.—F. E. C. 1, Radford Beauty; 2, Gascoyne's Scarlet Seedling.—*R. Corby.* Beurre d'Amanlis.—*J. J.* Both fruits are Malster.—*Kingston.* 1, Blenheim Pippin; 2, Cox's Orange Pippin; 3, Sturmer Pippin; 4, Hoary Morning; 5, Court-pendul-plat; 6, Norfolk Beefing.—*A. Williams.* 1, Small's Admirable; 2, Stirling Castle; 3, Hoary Morning; 4, Dumelow's Seedling (Wellington); 5, not recognised; 6, Tom Putt; 7, Wealthy; 8, King of the Pippins.—*W. T. M.* 1, Yorkshire Greening; 2, Ribston Pippin; 3, Herefordshire Pearmain; 4, American Mother; 5, Schoolmaster; 6, Tower of Glamis.—*H. Martin.* 1, Baldwin; 2, Batchelor's Glory; 3, King of Tompkins County; 4, American Mother; 5, Golden Noble; 6, Beurre Capiaumont.—*Bonjour.* 1, Dumelow's Seedling (Wellington); 2, Lord Suffield; 3 and 4, Blenheim Pippin; 5, Lady's Finger; 6, Old Nonpareil.—*H. T. Lobel.* 1, Sugar Loaf; 2, Bismarck; 3, Welford Park Nonpareil; 4, King of the Pippins; 5, Bramley's Seedling; 6, Roundway's Magnum Bonum.—*B. A. Hall.* 1, Wilson's Prolific; 2, Schoolmaster.—*H. C.* 1, Lord Burghley;

2, Reinette Franche; 3, Sandringham; 4, Alfriston; 5, Whiting Pippin.—*A. W. D.* We cannot undertake to name such badly developed fruits.—*Rutland Cottage.* 1, Dean's Codlin; 2, Potts's Seedling; 3 and 5, King of the Pippins; 4, Cox's Orange Pippin; 6, Lord Derby; 7, Stirling Castle.—*W. Cornwall.* Jolly Beggar.—*D. Cunningham.* 1, Potts's Seedling; 2, Golden Noble.—*William Yandell.* We do not recognise your Apple, which must be a local variety. It has a fine appearance, and earlier in the season might possibly possess a better flavour.—*J. L.* 1, King of the Pippins; 2, Claygate Pearmain; 3, Fearn's Pippin; 4, Baxter's Pearmain; 5, New Hawthorn; 6, Summer Strawberry.—*F. Edgington.* Apples: 1, Lady Derby; 2, Yorkshire Greening; 4, Chelmsford Wonder; 6, Minchall Crab; Pears: 3, Beurre d'Amanlis; 5, Gratioli de Jersey.—*F. Ellis.* 1, Cullen; 2, Royal Russet; 3, not recognised, a local variety; 4, Tower of Glamis.—*F. A. A.* 1, General Todleben; 2, Duchesse d'Angouleme; 3, Beurre Sterckmaus; 4, Pitmaston Duchess; 5, Marie Louise; 6, Brockworth Park; 7, Doyenné du Comice; 8, Glou Morceau.—*G. K. P.* We do not undertake to name more than six fruits at one time. 1, Cellini; 2, Blenheim Pippin; 3, Potts's Seedling; 4, Cox's Pomona; 5, Quarrenden; 6, Cox's Orange Pippin; 7, Malster; 8, King of the Pippins; 9, Dumelow's Seedling (Wellington); 10, Mank's Codlin; 11, Wykin Pippin; 12, Radford Beauty; 13, Dumelow's Seedling (Wellington); 14, Yorkshire Greening; 15, Broad-Eyed Pippin; 17, Worcester Pearmain; 18, not recognised.—*Harry Williams.* 1, Newton Wonder; 2, Kerry Pippin.—*F. Dunn.* 1, Small's Admirable; 2, White Westling; 3, Royale d'Angleterre.—*A. W. D.* Cox's Orange Pippin.—*Barvelucht.* 1 and 4, Beurre d'Amanlis; 2, Pitmaston Duchess; 3, Gansel's Late Bergamot; 5, not recognised; 6, Comte de Lamy.—*A. S. K.* Aston Town.—*J. R. M.* Tom Putt.—*C. S. R.* 1, Annie Elizabeth; 2, King of the Pippins; 3, a very small fruit, not recognised.—*E. S. 1,* Peasgood's Nonpareil; 2, American Mother; 3, Red Ingestrie.—*H. Spight.* 1, Knight's Monarch; 2, Fondante d'Cuerné.—*G. B.* 1, Lady Derby; 2, Duchess of Oldenburgh; 3, Scarlet Napoleon; 4, Potts's Seedling; 5, not recognised; 6, King of the Pippins.—*M. B.* 1 and 2, Worcester Pearmain; 3 and 7, Cox's Orange Pippin; 4, Beauty of Hants; 5, Ribston Pippin; 6, Tom Putt; 8, Pitmaston Pine Apple.—*Mrs. Batson.* 1 and 2, Blenheim Pippin; 3, 9 and 10, Lord Derby; 4, Belle Dubois; 5, The Queen; 6, 7 and 8, Annie Elizabeth; 12, Cox's Orange Pippin; 13, Bedfordshire Foundling.—*H. M. Onez.* 1, Franklin's Golden Pippin; 2, Bedfordshire Foundling; 3, Radford Beauty; 4, King of the Pippins; 5, Scarlet Golden Pippin.—*W. H. B.* 1, Warner's King; 2, Grosvenor.—*Glewing Park.* 1, Souvenir du Congrès; 2, Beurre d'Amanlis; 3, Doyenné du Comice; 4, Durdand; 5, Gansel's Bergamot.

NAMES OF PLANTS: W. Harris. 1, Clematis Viticella; 4, Herniaria glabra; 5, Helxine Solierii. Nos. 2 and 3 were too scrappy to identify.—*A. C.* Datura Stramonium (Thorn Apple).—*Ernesti.* No. 4, Senecio tanguticus.—*A. W. S.* Pityopsis tenuifolium.—*F. W. Bond.* Indigofera Gerardiana.—*M. Cornwall.* 1, Lycium chinensis; 2, Spirea japonica; 4, Heuchera sp. (cannot name leaves only).—*Tom Harris.* 1, Helianthus giganteus; 2, Helium autumnale; 3, Helianthus rigidus var.; 4, Pueraria Thunbergiana; 5, Silphium perfoliatum; 6, Borago laxiflora.—*M. Helianthus* Miss Mellish.—*Kingston.* 1, Euphorbia virosa; 2, E. splendens; 3, Phyllocactus sp.; 4, Opuntia Scheeri; 5, O. mesacanthus; 6, O. Kleinii.—*E. Semper.* 1, Phlox subulata var.; 2, Sambucus racemosa.—*J. H. Hard.* We do not undertake to name varieties of Pelargonium or other florists' flowers.—*L. M. R.* Poterium tenuifolium.—*W. G. B.* 1, Jasmium odoratissimum; 2, Achimenes longiflora; 3, Euphorbia splendens; 4, Hibiscus Cooperi; 5, Hymenocallis speciosa; 6, Acalypha hispida (Sander).—*J. B.* Cornus Spathulif.—*F. H.* 1, Pleurothallis Groby; 2, Odontoglossum Lindleyanum.—*A. E. A.* Cryptomeria japonica.

NOTICE TO TERMINATE EMPLOYMENT: Brewer. (a) It has been decided by the Courts that, in

the absence of any special agreement, a head gardener is entitled to one month's notice and no more. There must have been some special circumstances in the 1903 case to which you refer. (b) Even if your employer has taken offence unreasonably you cannot refuse to accept the notice. (c) As to the extra pay at the end of each year, the question turns on whether this was intended to be a free gift or whether it represented deferred pay given annually by mutual agreement (instead of increased monthly or weekly salary). If your recollection of the arrangement is accurate we should look upon it as deferred pay in respect of which you could claim a proportion up to the date of your leaving, but the fact of your having taken no steps to enforce payment of it during the past nine months would weaken your case.

OUTDOOR FIGS: W. E. B. The immature fruits of which you send a sample, will not ripen, and should be removed from the tree in order to favour the development of the embryo fruits which will form the crop of next year. Another season you may remove in September any fruits that are not likely to ripen.

REFERENCES: H. W. We consider that, as you wrote asking for an interview in reply to the advertisement, you must be taken to have applied for the situation and that legally the advertiser was at liberty to write to your present employer without first communicating with you. At the same time it was very inconsiderate of the advertiser to write to your employer unless he definitely intended to engage you subject to your references being satisfactory. In applying for a situation it is always well to ask that your employer shall not be troubled unless it is intended to give you the situation subject to your employer's references being satisfactory.

ROOKS: I. S. E. The natural way of getting rid of the large colony of rooks which has established itself in your garden would be by shooting the birds. We do not know of any satisfactory method of so scaring them that they may be trusted never to return.

SHAKESPEARE'S FLOWERS: Aigburthensis. Information of the kind you require will be found in a volume entitled *The Plant-Lore and Garden-Craft of Shakespeare*, by Rev. Henry N. Ellacombe, published by Mr. Edward Arnold in 1878. Copies are not now obtainable except at second-hand booksellers.

SHRUBS FOR PLANTING ON THE TOP OF A WIDE WALL: Seacoast. Any of the undomesticated species and varieties may be planted on the wall with fair hopes of success. Juniperus sabina, J. s. prostrata, J. s. tamariscifolia, Taxus baccata ericoides, Cytisus albus, C. praecox, C. scoparius, Genista hispanica, G. monstrata, Eucymia, radicans, E. r. Silva Gen. Colutea arborescens, Buxus sempervirens, B. japonica, Gaultheria Shallon, G. procumbens, Cotoneaster microphylla, C. congesta, Fuchsias, and Ulex europæus fl. pl.

TOMATO AND METON ROOTS: A. S. B. and G. G. The roots are badly infected with elmworm. It is too late to save the plants, and, after the fruits have been gathered, they should be destroyed by burning, taking care to see that every portion of the roots is destroyed. The soil is affected, and must not be used for similar plants again, but buried in some out-of-the-way part of the garden.

TOMATO ROOTS: A. G. B. The creatures seen in the pieces of decayed roots are (1) the small Snake Millepede (Blanulius guttulatus), (2) small Mites (Glyciphagus sp.). The cause of the damage has been the Knot Root Elmworm, Heterodera radicola, which is microscopic. The two creatures you send have not caused the disease, but the Snake Millepede does some damage to roots of various plants.

Communications Received. G. B. & Co., F. C., H. D., A. D., E. M., J. L., T. H. S., C. S., T. A. W. H., Bedale, J. F., Bawick, H. P., A. H., C. S., X. Y., Z. W., B. J., B. C., D. H., H. H., Hard-wor, R. H., B. L., W. and S., A. W. and Son, J. B., S. T., D. F., C. J. M. H., J. E., J. E., Subscriber M. and K., Dresden, W. B. & Sons, W. P., R. T. A. W., J. W. B., W. B., D. R., W. V., B. H., W. H., W. Pen, J. W. B., Melbourne, A. C. B., S. A., W. J. W. K., L. S., C. R., Dublin, W. P., Reigate, F. M., R. F., Smith, Nerry, C. L., Aberystwyth, W., F. C., Herts., E. G., H. S., E. W. S., T. J., W. W., C. W., J. B., W. W., W. H., Y. W. H.

THE Gardeners' Chronicle

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THE MYSTERY OF THE FIG UNRAVELLED.*

THE life history of the common Fig has been a subject of investigation ever since man turned his attention to natural history, from Theophrastus, who flourished three centuries before the commencement of the Christian era, down to the present day. The substance of some of the later writings has appeared in the *Gardeners' Chronicle* from time to time. Noteworthy among comparatively recent papers on the subject are those by Solms Laubach and Fritz Mueller, reviewed in the *Gardeners' Chronicle*, n.s. xix., 1883, pp. 529 and 572. Solms discussed the subject from the point of view of the Caprifig being the wild condition of the species, and the cultivated Fig as having been selected from wild forms which had developed some succulence in the fruit, which had been further increased and improved by cultivation. Mueller, on the other hand, argued that the Caprifig, standing alone, did not possess all the attributes of a species, but, taking it as the male and the cultivated Fig as the female, the combination presented a complete species. Neither of these explanations was satisfactory, and Prof. Tschirch's interpretation, as unfolded below, is much more

convincing. He claims to have discovered the clue and solved the problem of the interrelations of the wild Fig, the cultivated Fig, and the Caprifig, and to have followed all the phases of the life-history of the insect concerned in the pollination of the Fig. In these prolonged and comprehensive investigations, Prof. Tschirch was assisted by a former pupil, Mr. Ravasini. Tschirch set himself the task of deciding certain moot points by means of exact experiments. The first was whether parthenogenesis, which has been observed in other species of Ficus, actually occurs in Ficus Carica. Next came the question of the utility or necessity of caprifigation, even as a factor in the successful cultivation of the Fig. Then the real relations of the so-called wild Fig and the Caprifig, and the nature of seedlings, raised from the cultivated Fig. Italy was chosen as the field of operations, because all the materials necessary for the purpose exist there. From a variety of causes, it was impossible for a foreigner to carry out the work unaided, and Tschirch was fortunate in securing the enthusiastic co-operation of Ravasini. The latter undertook the whole of the literary researches, and travelled through Italy, from Emilia to Calabria and Sicily for the purpose of visiting the Fig gardens to make observations and collect specimens and information from the growers themselves. He spent a year and a half visiting various establishments, examined some 3,000 trees belonging to 100 different varieties, and investigated the contents of upwards of 20,000 receptacles or fruits. The materials were, in all cases, preserved, and his observations controlled by Tschirch. A large number of carefully conducted experiments with young Fig fruits, from which the insect (Blastophaga) was excluded by gauze coverings, resulted in no seed being formed. Therefore it was assumed, though not absolutely proved, that parthenogenesis does not take place in the cultivated Fig. The next thing to determine was whether the wild Fig and the Caprifig were identical, and it was found that they are always easily distinguishable. The conclusion arrived at was that, the wild Fig was the progenitor of the Caprifig and the cultivated Fig, and Tschirch proposes naming the wild Fig *Ficus Carica*, L., the male Caprifig, *F. Carica a caprificus*; the female cultivated Fig, *F. Carica b domestica*. It was further proved that all seedlings raised from the wild Fig and the cultivated female Fig (visited by insects), were the wild Fig, none Caprifig, none female cultivated Fig, "which can only be propagated true by cuttings or grafting." Cultivators unanimously confirmed these conclusions. The cultivated Fig gives rise to new varieties; but the offspring is never Caprifig, never the genuine wild Fig. The wild or primeval Fig tree of Italy produces three generations of infertile (or fruit) as shown in the accompanying diagram (fig. 120), where are given dates of inception and ripening. The first generation, the profichi, which appears in February or March, in the axils of the leaves of the previous season's

wood, contains only male flowers and gall-flowers. This is not an edible fruit. The second generation, the fichi, is borne on the lower part of the young branches and contains only fertile, long-styled female flowers. This is an edible fruit. The third generation, the mamme, which appears on the upper part of the young shoots in September, but does not mature until March or April of the following year, contains only gall-flowers, and is not eatable. Gall-flowers occupy the base and sides of the receptacles of the profichi, and the male flowers are limited to a zone at the top around the base of the orifice. The profichi represent the male generation. The receptacles remain hard and milky almost to the ripe stage, and then only soften partially without the secretion of sugar. Apart from the absence of sugar they would not be edible, because each receptacle contains from 200 to 300 individuals of the Blastophaga. It is in the profichi that the inquiline, or insect, passes through its first stage or generation. The fichi represent the female generation of the wild Fig. The mamme, which always remain small, serve only to preserve the insect through the winter during its second stage. They shrivel and fall from the tree as soon as the insects emerge in the spring. The development of the flowers of the wild Fig and the development of the insect are admirably adapted to each other. It is an instance of the most marvellously organised symbiosis imaginable; for the development of the insect without the plant is just as impossible as the formation of the seed of the latter without the intervention of the insect. Tschirch and Ravasini followed every stage of this symbiosis or united life. After the copulation of the sexes of the Blastophaga in the mamme, the females leave the receptacles of the profichi, where they find the so-called gall-flowers in exactly the right stage for receiving their eggs. The gall-flowers are imperfectly formed, having the appearance of short-styled females, in which, however, the conducting-tissue of the style is replaced by an open channel, and the ovule by a slightly differentiated knob of tissue which offers a suitable nidus for the eggs. The female insects are exceedingly productive, and capable of depositing an egg in each of hundreds of gall-flowers. Some of the eggs develop into males, some into females. The wingless males are able to gnaw through the shell of the gall and reach the females, whom they impregnate, and then die. Soon the female insects free themselves and make for the orifice of the receptacle. Meanwhile, the male flowers around the orifice have ripened their pollen, with which the female insect becomes covered as it passes out. She carries the pollen to the fichi, and as she enters through the orifice, the pollen is transferred to the long-styled, perfect, female flowers. A solitary female insect can convey sufficient pollen to fertilise all the numerous flowers

* 1. A. Pinner: Die Feigenbaum-Industrie. (Feigen-Culturen, Teil, Lössen Carica a Caprificus und Ficus Carica b domestica und ihre Beziehungen zueinander. Sonderabdruck aus den Berichten der Deutschen Botanischen Gesellschaft, Jena, 1911, Band 1, Heft 2, Seiten 53-96, mit 120 Abbildungen, Text 2. Ueber die Urtags- und Kultur-Feigen zu den Kultur-Feigen, von A. Pinner. Separatdruck aus der Schweizerischen Wochenschrift für Chemie und Pharmazie, 1911, Seiten 1-11.

† Die Herkunft, Domestikation und Verbreitung des gewöhnlichen Feigenbaums, Ficus Carica, von H. Graf zu Solms-Laubach. Abhandl. Gesell. Wiss. Göttingen, vol. xviii., 1882. Caprificus und Feigenbaum, von Fritz Mueller. Kosmos, vol. vi., 1882.



FIG. 121.—RHODODENDRON WIGHTII. FLOWERS YELLOW, WITH CRIMSON MARKINGS.

NEW OR NOTEWORTHY PLANTS.

A NEW COLCHICUM.

WE have received from Mr. Amos Perry, Enfield, a flower of a species of *Colchicum*, bulbs of which were collected in Syria last year. In regard to the identity of the species, Mr. Irving, of Kew, writes us as follows:—"So far as can be determined from a single bloom, it is evidently quite distinct, although closely allied to *C. Parkinsonii*, from which it differs in that the flowers are of a primrose-yellow colour—tesse-lated as in *Parkinsonii*—with rosy-purple markings towards the base of the segments. The flowers are from 4 to 5 inches in diameter, the segments being nearly 1 inch across at their widest part. Yellow flowers are rare in the genus, the only other yellow-flowered species being *C. luteum*, a native of the Himalaya. As a provisional name *C. Parkinsonii* var. *flavum* would be suitable."

NOTICES OF BOOKS.

BRITISH RAINFALL FOR 1910.*

TIMEs, the fiftieth annual volume dealing with the rainfall of the British Isles, has recently made its welcome appearance, and, as usual, contains additional matter and new methods of treatment of the subject as compared with those given in previous issues. To the horticulturist the volume cannot fail to be of unusual interest after the exceptionally hot and dry summer. Such a season must have caused every gardener to realize more than ever before what a very valuable asset rain is in bringing to perfection the plants under his care, and how helpless he is in many cases without a sufficient supply. Such statistics as form the subject matter of this book take a long time to prepare for publication, consequently the volume before us treats more particularly of 1910, which, unlike the present year, proved very wet. Taking that year as a whole, the departures from the average in the total fall of rain were, we are informed, greatest in Wales, next greatest in England, less great in Ireland, and least in Scotland. The aggregate rainfall for the whole of the British Isles was, with the two exceptions of 1900 and 1903, heavier than in any year since 1882, or for 13 years. The gardener, however, is more particularly concerned with the rainfall of the summer half of the year, as it is during that period that vegetation is in a more or less active condition of growth. The total rainfall for those six months is stated to have been in excess of the average, and would have come out more largely in excess than it did, but for the extraordinary dry weather in September. Keeping in mind the influence of rain upon our gardens, it becomes necessary to enquire still further and to ascertain something about the fall in each month during the summer half of the year. We find that April was decidedly wet, May rather wet, June and July wet, August very wet, and September singularly dry. So fickle, however, is our climate that even then an erroneous conclusion may be formed as to the character of some of those months. For instance, taking any two successive months, the whole of the rain may have been deposited at the beginning of one of those months and at the end of the next one, leaving the six intervening weeks without any rain at all. Turning therefore to the chapter on what the author aptly terms "rain spells," that is to say, periods of more than 14 consecutive rainy days, we find that last year, in the British Isles, taking 100 rainfall stations, there were 235 of such rain spells, or more than in any year since 1903, while the number of absolute and partial droughts at the same stations was only about half the average. The work includes a very

interesting article on the greatest fall of rain which has been recorded in a single day in every county in the United Kingdom, the conclusion come to being that there is no part of the British Isles where 4 inches of rain, equivalent to 18½ gallons on each square yard of surface, may not be deposited in a single day. Those who are thinking of starting a rain gauge should read the article entitled "The Rain Gauge in Theory and Practice." Enough, however, has been said to show the complete character of the information given in this work, which, in addition, contains the amount of rainfall recorded in the British Isles in 1910 by nearly 5,000 observers. There are numerous maps and diagrams, illustrating the rainfall, and several pictures on art paper. *Edward Mauley.*

REPORT ON THE SEED CROPS.

PEAS are very deficient in all countries, and are likely to be at famine prices. The crop is a very disappointing one; in fact, one of the worst in living memory, many crops producing not more, and in some cases less, than the seed sown. The demand is far in excess of the supply both at home and abroad.

BROAD BEANS.—In most English counties and in Holland, Broad Beans have been scorched by the sun and smothered with black fly; many acres have been ploughed in. In some few districts, on deep holding ground, however, they have produced very medium crops, and they may not be quite so scarce as Runner Beans and Peas. The plants of Runner Beans have grown and done fairly well, but, owing to the heat, most of the blooms have dropped, and consequently few pods have formed. The very recent rain has started the production of pods again, but it can hardly be expected that these will ripen.

BRASSICA.—The Cabbages supply an exception to the rule. The plants, having been in the ground since last year, were well established, and able to withstand the early drought; they ripened off well before the excess of drought could affect them materially. Crops of this kind of seed are therefore fairly good, and the seed is in splendid condition. There was, however, but a small acreage, and seeds cannot be very plentiful next year. Amongst Brassicas, however, Turnips have yielded extremely short and disappointing crops, the white-fleshed varieties in particular.

BEET.—The Beet crop is very deficient everywhere. The plants did not get a chance to grow and branch out, and many plantations failed entirely. Seeds of Beet are not usually ready to harvest until the end of October, sometimes later, but this year they have long since been cut, although not yet cleaned. The seeds will probably prove to be very small and somewhat light, but of good quality.

CARROTS.—The crops of Carrot seed are very light indeed. The roots, having suffered from the wet season of last year, kept badly through the winter, and the drought during the summer completed the undoing of this crop. Consequently the prices rule very high.

ONIONS.—The remarks on Carrots apply equally to Onions, and the outlook for these two important vegetables is anything but a rosy one, plants and bulbs being very scarce indeed.

MANGOLDS.—Although these gave promise of a fairly good crop at one time—in the early stages—being more robust growers than Beets and more able to withstand drought, yet before the plants developed seed the black fly appeared, and gradually smothered most of the plantations, stopped the growth of the seed, and killed many of the plants. Hence the yield will prove to be less than for many years.

LETTUCES are not so bad generally as some vegetable seeds. The plants in some places have suffered severely, but where they have stood, the yield may be put probably at not much more than half a crop.

RADISHES.—The Continental crops of Radish seeds are extremely poor, and in England, although somewhat better, they are yielding badly. The promise was good, and plantations looked like yielding well from the appearance of the pods, but none contains more than a few seeds, and many pods are quite empty. The yield barely comes up to half what was expected.

FLOWER SEEDS.

Flower seeds have fared, as a rule, somewhat better than vegetable seeds, and in a very few cases the plants have produced good crops. In many instances they have suffered considerably, and have yielded little or no seed, Asters being amongst the worst failures. Sweet Peas are also a very moderate crop, although the quality of the seed is considerably better than in the last two years.

Nasturtiums suffered from the great heat, with the result that the crop is a very light one.

Many perennials and biennials have suffered severely, such as Canterbury Bells, *Myosotis*, and others, and the crops are deficient, whilst the prospects for next year are very bad on account of the shortage of plants and the necessarily very late planting.

After three unsatisfactory seasons following each other, the two first with excess of rain and cold and the last spoiled by excess of heat and lack of rain, it may well be wondered what may be the result of next season should the summer of 1912 unfortunately prove to be unfavourable for the production of seeds. It would be so disastrous that we may well hope that seed growers and gardeners may be saved from the experience. *Seedsman.*

THE ALPINE GARDEN.

ERODIUM MACRADENUM.

ERODIUM MACRADENUM, the large-glanded Heron's Bill, is a native of the Pyrenees, and of much value for planting in the rock-garden. The plant delights in a dry, sunny place, never seeming to suffer from the effects of too much sunshine or drought. It forms a pretty plant, having very finely-divided leaves, covered with a glandular pubescence, which gives a feature of some beauty. The flowers are of a pale-violet colour, the broadest petals having generally a dark-purple marking at the base. The flowering period is given as June and July, but this year plants have flowered after the middle of August. The plant is considered a lime-lover, but it will do well in soil free from lime. A free drainage and full exposure to sunshine are essential for its success. *S. Arnott.*

HARDY FLOWER BORDER.

DATISCA CANNABINA.

ALTHOUGH of highly ornamental habit and foliage, *Datisca cannabina* is rarely found outside botanic gardens. It grows about 6 feet high. The pinnate leaves are 1 foot in length; the pinnae in about six pairs, with an odd one, are lanceolate, acuminate, and laciniate. The plant belongs to the small Order Datisceæ, which is placed between the Begoniaceæ and Cactææ, but with neither of these has it any evident affinity, unless it be in the unisexual flowers—of which, as in Begonia, the males are polyandrous, the females with inferior ovary—and in the numerous anatropous ovules, capsular fruits, sub-exalbuminous seeds, and straight, cylindric axile embryo. But the points of disagreement are perhaps no less striking. It is dioecious, and the female plant is much the more ornamental from the graceful disposition of the swelling ovaries. The species is a native of the Himalayan region, and the East. It is perfectly hardy, and sends up new shoots strongly every year with the most perfect regularity. There is one other species, *D. glomerata*, a native of California. *R. Irwin Lynch.*

* By H. R. Mill, Director of the British Rainfall Organization. (Edward Stanford.) Price 10s.

NURSERY NOTES.

THE MAIDSTONE NURSERIES.

In accordance with an old-established custom, Messrs. G. Bunyard & Co., Ltd., Maidstone, recently invited a party of gardeners, fruit-growers, and others interested in fruit growing, including some members of the Royal Horticultural Society's Fruit Committee, to inspect the firm's nurseries in the Maidstone district. The party, 50 in number, visited the several branch nurseries at Maidstone, where many things of interest were seen, including a grand collection of pot vines. They drove subsequently to Allington Nursery, which embraces some 170 acres. The nursery is devoted to the cultivation of trees, shrubs, plants, fruit-trees, and bushes. Luncheon was provided in the large packing shed, at which Mr. George

Apple are found in all quarters, and in a season of unparalleled heat and drought. A plantation of bush trees was especially interesting to those who intend to plant suitable varieties of this form of tree. All the sorts were heavily cropped, and it was a difficult matter to make a selection amongst such large numbers of good varieties. Of dessert varieties, the most attractive were Adams's Pearmain, Cox's Orange Pippin, James Grieve, Transparent de Croncels, Foster's (a very handsome, richly-coloured variety), Winter Ribston (a fine late-keeping Apple), Farmer's Seedling (a little-known, but exceptionally good Apple), Allington Pippin, Rival (exceptionally beautiful fruits), Lady Sudeley, Blue Pearmain (well named as seen on the trees), May Queen (a heavy cropping and late keeping Apple), King of the Pippins, and Ben's Red. Of culinary sorts the following represent a good

The varieties included Baumann's Reinette, Charles Ross, Coronation, James Grieve, Rival, Allington Pippin, The Houblon, Twenty Ounce, and Emperor Alexander. In a large span-roofed house various Pears were planted out against pillars and trained transversely under the roof. Fondante de Thurriot, Beurré Diel, Durondeaux, and Belle des Arbres were all fruiting finely. The intervening spaces on the floor are filled later in the season with pot fruit trees. In another glasshouse Pear trees in pots were carrying fruits of splendid quality. In orchards attached to the nursery Cherries grow luxuriantly in grassland and give abundant crops. In other orchards, where the ground is cultivated, trees of Worcester Pearmain Apple presented beautiful pictures, the great heads being brilliantly coloured with fruits. The visitors passed quarter after quarter, each containing many thousands of young Apple, Pear, Plum, Cherry or other fruit trees, including large numbers of dwarf and standard flat-trained Peaches, Nectarines, Plums, and Pears. In a large plantation of Boskoop Giant Black Currant not a single big bud was to be seen. Gooseberries also were exceptionally healthy, and only the Raspberries appeared to have made less growth than usual. D.



FIG. 122.—FRUIT OF THE POMEGRANATE, *PUNICEA GRANATUM*, GROWN AT LIVERMERE PARK, BURY ST. EDMUNDS.

Bunyard, on behalf of the firm, tendered to the guests a hearty welcome. Notwithstanding the heat and drought of the summer, all the trees looked exceptionally well, and had made a free, robust growth. Before planting, the ground is deeply worked and well manured, and this culture, together with a constant use of the hoe, has resulted in a moist rooting medium, so that the influence of the dry weather was not visible in the plants. The value of a loose surface in such a dry season cannot well be over estimated, for in addition to preventing the escape of moisture by evaporation, all weeds are destroyed. The crop of Apples was so large as to amount to several thousands of bushels, the variety Cox's Orange Pippin being specially good. In some quarters there is a complaint that this fine variety is becoming exhausted, yet, although last autumn was so unfavourable for the ripening of the wood, grand crops of this

selection :—Early Victoria, Norfolk Beauty, Warner's King, Lord Derby, Tower of Glamis, Emperor Alexander, Chelmsford Wonder, Sanspareil, Brabant Bellefleur, Mrs. Barron, Beauty of Kent, Gascoyne's Scarlet Seedling, Baron Wolseley, Lord Castlereagh (a new variety), Mère de Ménage, Belle de Boskoop and Royal Jubilee. A number of trees of Red Quarrenden had been cut down and re-grafted three years ago last spring, with Ben's Red and May Queen. All the heads had been summer pruned, the trees were compact, and each was carrying a large crop. The fruits of Ben's Red were of a glorious colour, and the marvellous crops of May Queen were the subject of general comment. Mr. Bunyard has a high opinion of this variety as a dessert Apple for use in midwinter and spring. In a wire-covered enclosure were some 200 Apple trees in pots, all carrying richly-coloured fruits.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

FRUITING OF THE POMEGRANATE (see pp 209, 228).—A tree of Pomegranate growing on a south wall in these gardens is carrying 39 fruits. During the 11 years I have been here it has never failed to produce a few fruits each season. The shoots were cut to the ground level by frost about 20 years ago, but the stem is now about 20 feet high. No protection is afforded the tree during the winter. I am sending a fruit (see fig. 122), which is a fair sample of the crop. *Thomas Nodding, Livermere Park Gardens, Bury St. Edmunds, Suffolk.*

EDINBURGH AUTUMN SHOW.—I am indebted to Mr. D. Mackenzie for the information he gives on p. 262, but the fact remains that the cheap excursion fares which have for many years been granted on the first day of the show were not allowed this year until the second day. It is in every way probable that the concession was originally granted at the request of the Society, and continued without their direct request. It must be said that the concessions within the 60-mile limit are made to those who have least need of them, and that a fare and a quarter is not a great concession after all, even to those within the distance, who, alone, can take advantage of it. But the gardeners who reside over 60 miles away can only reap this slight benefit by taking an ordinary return ticket to a station within the 60-mile radius and re-booking from there if there should be time to do so. The Council of the Society would do well to study and cater for those at a distance, as well as for those near Edinburgh, and the question of railway facilities is one of considerable importance. I have learned since I wrote you that there is no distance limit with the cheap fares for the Chrysanthemum Show of the Scottish Horticultural Association. *A Galloway Gardener.*

MARKET-GARDENING IN SOUTH-EAST SCOTLAND.—Mr. Taylor's remarks on market-gardening in South-east Scotland (see p. 235) were highly instructive to those interested in intensive cultivation, as there are many points in common between the methods employed by these northern market men and "French" gardeners. The choice of the strain of seeds seems to be, as in France, a very important item, for in both cases not only are suitable varieties grown, but special care is taken to improve them by selection. The manuring of the ground is also a parallel worth noting. If we accept the figures given by Mr. Taylor, viz., 100 to 110 tons per annum per acre, this represents at the lowest estimate an expenditure of £25, yet Scotch growers do not consider this extravagant, and, as with French growers, the results seem to justify the means. It may be noticed that

whereas in Scotland the manure is only used once by digging it into the ground, in intensive cultivation it is available for further use after having been employed in the making of hotbeds. The financial results quoted by Mr. Taylor are worthy of the consideration of those who doubted the profits obtained from intensive gardening, but no doubt much of the success obtained in Scotland is due to the long hours and persevering care of the growers. *P. Aquatics.*

STOCK AND SCION IN FRUITS AND ROSES.—Some little time ago, for the first time, I had the great pleasure of a somewhat hurried look round the gardens and grounds at Guntun Park in Norfolk. Fortunately I was accompanied by the well-known gardener, Mr. William Allen, who, I learned, had been in charge since 1867. There was abundant evidence of his well-known skill as a practical gardener. Having seen some Guntun Muscats exhibited in Manchester a good many years ago, and hearing of them in the interval I was anxious to see them growing. The house is an ordinary, somewhat old-fashioned lean-to structure with plenty of light, yet not glazed with such large squares as characterise modern vineries. There was a splendid crop of good-sized, well-set bunches just beginning to colour. One vine practically occupies the whole house, say about 40 feet in length by 14 feet wide. It was originally inarched on a Foster's Seeding vine, and succeeded so well that the remaining vines in the house were gradually cut out to make room for it. As is known to many Grape growers Foster's Seeding vine has a good constitution, and in most soils makes fibrous roots freely, hence is a good stock to use for other better flavoured varieties. I have never seen a clearer instance of this than at Guntun. A few days afterwards when walking through the well-stocked nurseries belonging to Messrs. Daniels & Co., Norwich, my attention was attracted to a good-sized bush of tall standard rambling Roses in variety. They were the results of last year's budding, and seemed to me to have made extra good growths. On asking my attendant how they managed to get hold of such tall briars he pointed to a side growth, and said "You ought to know this; you suggested its suitability as a stock for Roses in the *Gardeners' Chronicle* nearly 20 years since." I at once saw it was my old friend Rosa Rugosa, of which I once sent you some notes as suitable for group planting in home woodlands for beauty and cover for rabbits, incidentally suggesting its use as a stock for Roses. I replied, why not use the same variety as a stock for standard Roses in general, more especially as briar stocks with fairly good roots are getting scarcer every year! *Yorkshire Gardener, September 25.*

RHUS TOXICODENDRON (see p. 262).—We have a very fine specimen of *Rhus toxicodendron* growing against terrace walls near to the Castle, and in October, when the leaves change colour, it is by far the handsomest specimen with coloured foliage. The plant is an old one, and was probably planted 50 years ago or more, yet, strange to say, no one knew of its poisonous properties or its proper name when I was appointed gardener. The old foreman, who had pruned and trained it for upwards of 30 years, was quite surprised when I explained the poisonous properties of the plant to him. This proves that there is no great danger in growing it in this country if reasonable care is taken, because, as in the case of *Humea* and *Primula obconica*, only a very few persons are susceptible to its poison. I have been informed by American visitors that the plant is much more poisonous in America. *W. H. Piers, Belvoir Castle Gardens, Grantham.*

DR. HOGG'S "FRUIT MANUAL."—In these days when the making of gardening books seems to have no end, is there not some risk of really important ones being overlooked? I am reminded of this now by seeing an advertisement in your columns recently for copy of the last edition of the *Fruit Manual*. The writer has been on the look out in the usual channels for a similar copy, but without success. If a new edition were brought out on the same lines with the addition of all new fruits, there could be no doubt it would sell in due course. Without for one moment wishing to cast any reflection on similar books published in the interval, I do not think they meet the same need as the *Fruit Manual* did in its day. *Yorkshire Gardener.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

SPUR - PRUNING.—Considerable advantages are gained by shortening, from time to time, the spurs on fully or almost fully-developed fruit-trees trained on walls or as espaliers in the open. This is especially necessary in the case of the Pear, which, under good management, will be fruitful for a great number of years. By periodically cutting back these frontal growths, not only is the general health of the tree improved and the tree made more productive, but the fruit also is of a much better quality. Other advantages are that the blossom is less affected by changes in the weather and the fruits are produced nearer to the wall and consequently under warmer conditions. Spurs that have extended to a considerable length often blossom profusely, but more frequently than not the greater number of such flowers turn yellow and drop. As a rule, long, ungainly spurs are infested with lichen and moss to the detriment of the tree. They also offer hiding places for the larva of insects, making it a difficult matter to cleanse the trees thoroughly by insecticides. It is the practice of some to reduce the length of a few of the spurs at one time, extending the operation over several seasons, ultimately replenishing the whole of the tree with new fruiting wood. Others shorten all the spurs at the same time, heedless of any risk of the tree receiving a somewhat severe check. Each method may have some advantages, and the operator must decide which course to adopt, after taking into careful consideration the general condition of the individual trees. It will sometimes be found that where the spurs have been allowed to grow unchecked for many years some of the buds at their bases have started feebly into growth, and ultimately perished through the old spurs receiving most of the sap. It is wise, therefore, whenever any of these buds show signs of breaking into growth to assist them by removing a portion of the old spur. An advantage derived by removing the extended spur at a fairly early date is that the wound caused by its removal is not large, and consequently soon healed, and also the regularity and fruitfulness of the tree are assured the sooner. With some trees it has been noticed that, when the old spurs are removed, the young spur which takes its place forms a fruit bud, which is productive during the second year. But it more frequently happens that, when the spurs that have been cut back are very old, the new spur will for two years produce little else than wood buds. The cause of this seems to be that, when a spur is allowed to become unduly large and extended, drawing a large amount of sap, the latter is checked at that part where it is severed, causing dormant buds to push forth. Thus the energies of the tree are expended at that part in the production of wood, instead of fruit-buds, which probably would not have been the case had the pruning been done gradually and at an earlier period in the life of the tree. The tree has as that the spurs must not be allowed to extend too far before being pruned, either wholly or partially, in order to obtain a new succession of fruiting spurs. In following this method many advantages may be obtained which will compensate for the extra care and attention bestowed upon the trees.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VISCOUNT GIBBS, Aldenham House, Hertfordshire.

TOMATOS.—Tomato plants intended for supplying fruit during the winter months will, as their pots become filled with roots, require more water, but it must be applied with discretion, and, for preference, in the forenoon. Afford a free circulation of fresh air whenever the conditions are favourable, to promote a sturdy growth. A top-dressing of good, turfy loam, mixed with either artificial manure or fermented horse droppings, will be extremely beneficial when the fruits of the first truss are set. Ram the fresh

soil firmly. Keep the leading shoot properly tied, and remove the side growths. If a difficulty is experienced in getting the flowers to set, artificial pollination must be resorted to, dusting the flowers about mid-day. A little artificial heat should be employed at this season, as the plants require a warm, buoyant atmosphere.

POT VINES.—The house in which pot vines are accommodated should receive a thorough cleansing, including the glass, and be otherwise got in readiness to receive the plants. The vines should be thoroughly matured this season, therefore there should be no delay in cutting back the canes. Wash the pots thoroughly, and see that the drainage is in perfect order. Remove some of the surface soil carefully, and afford a top-dressing of rich materials; but, before doing this, see that the soil in the pots is not dry. Stand the plants where they will receive plenty of fresh air. A week or so before the time arrives for placing the pots in position, prepare the material in which they are to be plunged. This should consist of long stable litter and tree leaves—of Oak or Beech for preference. The manure and leaves should be well mixed and turned several times in a place where they will not get too wet, but not where they will be dried by winds. Before being brought into the house, a suitable stage of fermentation must be reached.

MUSCAT OF ALEXANDRIA.—No pains should be spared to keep "Muscat" Grapes as long as possible in a good condition. The bunches in the latest house should now be well finished, and any light shading that may have been used should be removed, so that the berries may receive all the sunlight. Ventilation must be afforded carefully, especially during cold or stormy weather, and a suitable temperature maintained with the aid of fire-heat. Water must be applied to the roots carefully, for whereas an excess of moisture in the soil must be guarded against, dryness at the roots will cause the berries to shrivel. A layer of clean straw applied as a mulch over the border will prevent undue evaporation, as well as give a neat and tidy appearance to the house.

GENERAL REMARKS.—Make sure that all the valves of the hot-water system are in a good order. It often happens, after disuse in the summer, that they become stiff and difficult to turn, in which case they will need to be oiled. The same remarks apply to the air taps; it is an excellent plan to make a practice of turning these once each week. The present is a good time to overhaul trellises and make good any defects in them. Shelves in glasshouses should be placed in order and well painted.

THE KITCHEN GARDEN.

By JOHN DEXS, Kitchen Garden Foreman, Royal Gardens, Windsor.

AUTUMN CAULIFLOWERS.—Plants of autumn Cauliflowers should be protected carefully from frost. Covering the curds with the foliage is sufficient to ward off a few degrees of frost, but, as time advances, some other protection should be provided. At Frogmore, we lift as many plants as possible when the crowns are formed, and place them in convenient batches for protecting. The plants are lifted carefully, and placed within 15 inches of each other, in trenches, which are made sufficiently deep to allow a few inches of the stem to be covered with soil. Great care is taken to retain as much soil about the roots as possible. If the ground is still dry, the plants should be copiously watered as each row is planted. The work should be done as soon as the crowns are formed, or the crop may be injured by frost before the covering is applied. If these directions are attended to carefully, the supply will be maintained for some time after the ordinary crop is over.

FRENCH BEANS.—Plants of French Beans growing in cold pits will also require protection from frost. Close the pits early in the afternoon, in order to retain as much sun-heat as possible. Ventilation should be afforded freely in the early part of the day, so that the atmosphere may become dry before the lights are closed, or damping may prove troublesome. When water is necessary, it should be applied early in the morning, and the lights left off until the foliage is dry again. Further sowings of this vegetable should be made in pots to provide pods in December. Pots 7 inches in dia-

meter are large enough for late crops of Beans, and they should be filled with turfy loam mixed with a small quantity of leaf-soil to keep the soil open. The plants should be grown in a temperature of 65°, and exposed fully to the sunlight in order to promote a sturdy growth. Beans in pots which were sown a month ago will be benefited by frequent applications of weak liquid manure. Top-dress the plants with loam and decayed horse manure before the growth is too far advanced to be benefited by it.

SEAKALE.—Crowns intended for early forcing may be divested of some of the lower leaves to allow the light and air to reach the centres of the plants. While they are still growing actively, a copious watering may be given with advantage, as Seakale roots force better after a moist season than a dry one. Tree leaves should be collected and placed in large heaps and allowed to ferment.

PLANTS UNDER GLASS.

By JAMES HUBBARD, Gardener to LIEUTENANT R. THORP, Esq., Gunnersbury House, Acton, Middlesex.

STOVE PLANTS.—There should still be a good supply of flowers in the stove, including, amongst the climbers, Allamandas and Dipladenias. In the case of the Allamanda, all weakly shoots should be removed, whilst the growths of Dipladenia must be kept free from mealy bug. Clerodendron fallax will continue to bloom well if the plants receive proper attention, and care is taken to remove the faded blossoms. The old flowers of Vincas should also be removed. Stove Vincas, if well looked after, will continue to present a gay appearance all through the present month. The late-flowering Aphelandra cristata is a noble-looking subject when in blossom, and is one that repays for careful attention. Where the dwarf A. aurantiaca Roeslii is grown for winter blooming, afford the plants plenty of light, so that they grow robust and do not become drawn. For this reason, I prefer to place them on a shelf near to the roof-glass. Ixoras should still continue to develop a number of flower-trusses. The Ixora is a valuable plant for the stove, and may be grown either as large specimens or as small plants, with single "heads," in 4½-inch pots. Gardenias that have made good growth should be producing occasional flowers. These plants need the warmest place in the house. In order to have Eucharis in flower during the Christmas season, it will be advisable to keep the plants somewhat rested now. Let them be kept moderately dry at the roots until the first week in November, but afterwards afford water more freely, then, in about six weeks time, a crop of flowers may be expected. These remarks apply to specimens planted out. Give every possible attention to plants of Euphorbia pulcherrima (Poinsettias), and E. jacquiniiflora. A moderately dry house or warm pit will suit both species, the stove proper being generally too moist for their requirements. If the plants of E. pulcherrima are checked by a chill when the bracts begin to develop, the immature bracts will often drop. Too much water at the roots, or a sluggish root-action will bring about the same result. Where Eranthemum pulchellum is grown for winter flowering, the plants should now be accommodated in the stove house, and afforded plenty of water at the roots. When grown in a cold temperature, numbers of white excrescences develop on the under surfaces of the leaves, causing the foliage to curl up and lose colour. Plumbago coccinea, which is preferable, perhaps, to P. rosea, does best in a moderately warm house, where it lasts for a long time in bloom. The flowers are very attractive when seen by artificial light. Thysanactanthus rutinus, which may be grown under comparatively cool conditions in the summer, should be placed in heat, but not sufficient to produce excessive leaf growth.

MANAGEMENT OF THE STOVE.—The intermediate house is an extremely useful house, and may be formed by dividing the stove proper in two with a partition. The intermediate house may be maintained at a temperature of about 60°, or 5° lower than the ordinary stove. In both cases a rise of from 10° to 15° may be allowed in the daytime. Ventilation must be given carefully, as these figures must not be exceeded unduly. The amount of moisture in the atmosphere should be reduced, as there is no

need at present for much fire-heat, and moisture should not be allowed to accumulate. This, however, may be regulated by careful ventilation. Shading is not necessary now, therefore anything employed for the purpose should be removed, and the glass washed thoroughly. It will be advisable to give the interior of the house a thorough cleansing, to make the conditions as bright as possible during the dull season. The hot-water pipes should be freed from accumulations of dirt of any kind.

BEGONIAS.—Begonias of the Gloire de Lorraine type are coming into flower, and should be given occasional applications of weak liquid manure. The plants should be afforded all the light possible, and this remark applies also to those of B. scottrana. A cool house will suit both kinds much better than a very warm one. B. Lucerna, a somewhat late growing variety, but an almost perpetual bloomer; B. Knowlesiana and B. insignis are also useful plants for winter blooming. When grown in small pots, the plants are useful for decorative purposes in the dwelling house. B. Moonlight is another good variety. The three last-named may be cultivated in cold frames and pits during the summer.

THE FLOWER GARDEN.

By R. F. BRETHERTON, Gardener to the Earl of HADDINGTON, K.T., Tynningham, East Lothian.

THE MIXED BORDER (continued).—The trained gardener has usually a decided preference for arranging his plants in lines or symmetrically-shaped groups, and many must have sympathised with Elizabeth in her frustrated hopes to get her German garden arranged informally, although it could have been accomplished quite easily. The furnishing of vacant spaces is also a matter of difficulty which some never overcome. Close planting is essential, and, in the case of many plants, it is preferable to employ small portions planted closely rather than large species at wider intervals. Single crowns of Aconitum, small side growths of Chrysanthemum maximum, individual shoots of Solidago, Helianthus, and many sorts of Aster are sometimes to be preferred to large clumps of these. A modification of this method permits of the association of a few or more plants which either flower at separate periods or simultaneously. A few combinations may be cited: Stenactis speciosa major and Heliotrope; Aconitum autumnale, Helenium grandicephalum striatum, and Phlox paniculata alba; white-flowered Hollyhocks and old-rose coloured Antirrhinum (a tall variety); Montbretia Vulcan and Blue Cornflowers; Montbretia Rayon d'Or, and Achillea Ptarmica The Pearl; single blue-flowered Chinese Asters, and light blue-flowered perennial Asters. With regard to colours it will be found that a well-arranged border changes its dominating tints naturally with the seasons. At the present time yellow is strongly in evidence, as it is also in the spring. But when the Delphiniums are in flower they give a blue tone to the borders, and at other times red flowers are prominent. To ensure success with the mixed border, it is imperative to select the plants with the greatest care. The general effect must always be studied, and the individual plants must be subservient to the general scheme. This is especially necessary in the case of small borders, and even in large borders it is possible to detract from their effectiveness by employing too much variety. It is better to plant novelties in the reserve garden and employ them for filling gaps rather than to give them a place in the border before they have been proved. It is a simple matter to transfer them to the border when in flower if they realise expectations, and much better than having to remove them because they have been unsatisfactory. The removal of plants that have failed to please when in flower and the substitution of others is not so often practised as it might be, probably because the facility with which this may be done is not generally understood. Some plants are well worth preserving for the effect of their seed vessels and fruits; examples may be given in Astilbe Aruncus, Broomrape, Cimicifuga, and Phlox Samia. In other subjects the foliage lends an additional charm, and such plants as Megasia cordifolia and broad-leaved Irises may be included for this reason. There are a few stately plants which, though tall of habit, should be arranged near to the front of the border; Lilium Martagon and its varieties, L. candidum, L. tigrinum, L. Henryi, Gladioli, and Montbretias are examples. Nor should sweet-smelling flowers,

such as Carnations, be arranged elsewhere than along the front. Although the mixed flower border is by many considered a very simple form of flower gardening, a perfect arrangement is very rarely accomplished even by the most expert gardeners.

TUBEROUS-ROOTED PLANTS.—As soon as the foliage of Begonias is frosted the tubers should be lifted and placed in one of the vineries to dry. I do not remove the whole of the soil from the roots, believing that it acts as a preservative. They may be stored in a cool store. Dahlias, however, should be stored where a uniform temperature of about 50° is maintained. As in the case of Begonias the soil should not be wholly removed from the tubers, which need not be dried previous to storing them. Gladioli are also ready to be shifted. The leaves, if not decayed, should not be cut off, but the entire plants laid out on the borders of a Peach house till the foliage turns yellow, when it should be removed, the soil cleaned off the corms, and the bulbs removed for increasing the stock. The corms of Gladioli will keep well in an ordinary fruit room.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

VANDA CERULEA.—Vanda cerulea is one of the most beautiful of Orchids, and it is not surprising that it is one of the most popular with cultivators. The blossoms are always of a much better colour where the air is pure than in gardens in the neighbourhood of large towns. The plants will sometimes bloom during the summer, but the flowers that are produced during the autumn months are usually the finest, and they last six weeks or more in perfection. It is no easy matter to maintain a large number of plants of this beautiful species in a robust condition. They thrive best where there is a constant supply of fresh air, a humid atmosphere, and plenty of light. Grown under these conditions they are not so liable to be affected with leaf spotting, which gives them an unsightly appearance. Spotted leaves are most prevalent during the winter months when the plants are least active, and the only method of combating the trouble is to avoid excessive moisture, both at the roots and in the atmosphere and at the same time to afford an abundance of fresh air whenever the conditions are favourable. A cool, intermediate temperature is suitable for the plants, which may now be exposed to full sunshine, no shading of any kind being needed.

V. KIMBALLIANA and V. WATSONII.—These Vandas are two of the most charming and fascinating plants in the whole Orchid family. Their habits of growth are similar, and the flowers also are alike, except in colour, those of V. Watsonii being pure white. The flower-spikes of both species are well advanced, but before the blossoms commence to expand, the plants should be placed in a slightly warmer and drier house, where the flowers will develop better and not be so likely to become spotted as in a cool, moist house. After the flowers are over, the fleshy roots should be afforded less water, reducing the amount gradually. During winter the plants may be rested in company with V. cerulea, affording water to the roots only when the leaves show signs of shrivelling.

DWARF LÆLIAS.—The dwarf-habited Lælia præstans, L. Dayana and L. pumila, are most valuable little Orchids for flowering at this season. All the plants succeed best when grown in shallow pans suspended in the cool, intermediate house, and the roots require a firm grip of the soil. As these kinds produce their flowers before the new growths are fully developed, the water supply must not be diminished until the little pseudo-bulbs are quite filled out, but when the thickened growths are ripe and plump, little water will be needed in winter, although shrivelling must be avoided. The small white scale, so destructive in the case of large Cattleyas and Lælias, is doubly injurious to these small species.

LÆLIA MONOPHYLLA.—This beautiful little species, which is now flowering, is distinct from the majority comprising the genus. The plant, having no pseudo-bulbs, needs a moist atmosphere and a certain amount of water at the roots during the whole year. L. monophylla succeeds best in small, shallow pans suspended in a light position in the cool house, but it must be shaded from the direct rays of the sun.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants requiring, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of this paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, OCTOBER 18—R.H.S. Ireland Winter Days. North of England Hort. Soc. 5h. at Leeds. (Lecture, at 8 p.m., by Mr. H. Somers Rivers on "Fruit-Growing in Orchard Houses.")

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—49.1°.

ACTUAL TEMPERATURES—LONDON.—Wednesday, October 11 (6 P.M.): Max. 58°; Min. 50°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, October 12 (10 A.M.): Bar. 30°; Temp. 53°; Weather—Slight fog.

PROVINCES.—Wednesday, October 11: Max. 53° Cambridge; Min. 48° Hull.

SALES FOR THE ENSUING WEEK.

MONDAY—Sale of Nursery Stock, at Royal Gardens, Hampton Court, by order of Mr. J. Naylor, by Protheroe & Morris, at 12.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—Bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 10.30.

MONDAY, WEDNESDAY AND THURSDAY—Bulbs, Rose Trees, Shrubs and Perennials, at Stevens' Auction Rooms, 38, King Street, Covent Garden, W.C., at 12.30.

TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—Nursery Stock, at The Nurseries, South Woodford, by order of Mr. John Fraser, by Protheroe & Morris, at 11.30.

WEDNESDAY—34,000 Maiden Apples, at Ladd's Court, Chart, Sutton, near Maidstone, by order of Mr. A. Miskin, by Protheroe & Morris, at 12.

Palms and Plants, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 5.

THURSDAY AND FRIDAY—Collection of Orchids formed by H. Little, Esq., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

The Conference on Genetics.

The fourth international conference on genetics was held at Paris on September 18 to September 23, under the auspices of the Société Nationale d'Horticulture de France. The conference was opened by a reception, at which the foreign members were welcomed by their French colleagues; the inaugural addresses were followed by a lantern display, given by M. Gaumont, who showed, among other things, some remarkably vivid and accurate examples of photography in colours, as applied to plants. M. Gaumont also showed an interesting series of cinematograph pictures depicting in detail the technique of emasculating and cross-fertilising Wheats.

The communications brought before the conference will be dealt with in detail in a later issue; for the present we shall only refer briefly to a few papers of more general scientific or practical interest.

Miss Saunders, whose experiments in the inheritance of doubleness in flowers are well known, gave a résumé of some of her work on this subject. In some cases the inheritance of doubleness follows simple Mendelian lines; in others it is of a very complex type, which, however, Miss Saunders has shown to be capable of inter-

pretation on the hypothesis that simpleness is due to the presence of two factors. She confirms in some degree the common opinion that old seeds give a higher proportion of doubles, the explanation being that the seeds destined to give doubles possess a greater vitality than those which give rise to singles.

The behaviour of hybrids between different species was dealt with by Professor Baur and Professor Lotsy. *Antirrhinum majus* was crossed reciprocally with *A. molle*, *A. sempervirens*, *A. latifolius* and other species. The F_1 and F_2 generations from these crosses give the clearest possible evidence of segregation; the number of factors involved may be judged from the fact that of 500 plants, scarcely any two were of identical appearance. A further point of interest was the appearance of a new type of flower in the F_2 from *A. majus* × *A. molle*. In these flowers the lips of the corolla are unlike the usual *Antirrhinum* type, recalling rather the shape of the corolla of *Rhinanthus*.

The papers dealing with cereals were sufficiently numerous to provide the entire programme for one sitting of the conference. Dr. Nilsson-Ehle described experiments which go to show that resistance to cold and precocity in Wheat and Oats depend upon combinations of Mendelian factors, successful selection for these characters signifying a re-grouping of the factors into combinations more and more advantageous under the given conditions.

Mr. Surface gave the results of selecting Maize for protein-content. An analysis of the pedigree of the selected Maize showed that the last generation consists entirely of the descendants of the same original stock, that is to say, the result of selection has been to isolate a "pure line" of high protein-content.

Mr. Orton described the results of selection for immunity from "or resistance to" fungous and bacterial diseases in varieties of Cotton, in the Cow Pea, and the Water Melon. The "wilt" of all these plants is caused by species of *Fusarium*, while the Cow Pea is also liable to the attacks of "eel worm" (*Heterodora radicola*). It may be mentioned that no resistant plants of the Water Melon were to be found. The Water Melon was, therefore, crossed with a non-edible Melon resistant to "wilt." F_1 gave an intermediate form, and F_2 gave a great diversity of types. From the later generations there has been selected a type combining the edible qualities of the Water Melon with the greater power of resistance to disease derived from the non-edible parent.

Professor Swingle described some interesting crosses between species of Citrus, in which several distinct types appeared in F_1 . M. Gard also gave instances of a similar phenomenon in *Cistus* crosses.

Results of great importance from the theoretical standpoint were announced by Mr. Bateson and Professor Punnett. These results, of which it is almost impossible to give a brief summary, will be described later. Suffice it to say here that all students of genetics are aware that the F_2 generations of certain di-

hybrid crosses show marked numerical departures from the normal ratio of 9 : 3 : 3 : 1. Though the departure is marked, it is quite regular, and can be accounted for on the hypothesis of gametic coupling. This year, Professor Punnett's experiments with Sweet Pea, in which the characters concerned were sterility and a curious malformation of the flower (*Cretin Pea*), have shown that just as partial coupling may occur, so may partial repulsion take place between the factors for separate characters.

During the course of the conference, visits were paid to the Institut Pasteur in Paris and at Garches, to the Museum of Natural History, and a day was also set apart for an excursion to the famous establishment of Messrs. Vilmorin, Andrieux and Company, at Verrières-le-Buisson, where the members of the conference were entertained at lunch by M. Ph. de Vilmorin. The scientific and horticultural work of M. de Vilmorin is too well known to need any eulogy from us, and we need only say that the objects of interest found in the gardens and in the admirable museum and library at Verrières were appreciated to the full by the members of the conference.

It is a great pleasure to add a word of congratulation and of thanks to the members of the Committee of the Société Nationale d'Horticulture de France, who were entrusted with the organisation of the conference, and specially to M. Ph. de Vilmorin, whose indefatigable activities contributed so greatly to the success which attended the conference.

Prospects of the Seed Crops.

The year 1911 will long be remembered as one of the most disastrous seed seasons on record, not so much from the quality of the seed, but from the extreme shortage of many crops. This great deficiency, as will be seen from the detailed report on p. 270, is not confined to any particular country, but is universal; moreover following, as it does, the poor seed harvest of the two previous wet and cold seasons, nearly all seeds are this year particularly scarce and dear. Hot, almost rainless, summer weather prevailed all over Europe, particularly in Germany, France, Holland, and England. Germany and some parts of France seem to have suffered even worse than England. Denmark, on the contrary, has not suffered so keenly.

The one redeeming fact is that what few seeds are or will be harvested are very good in quality. Sunshine is very necessary for maturing seeds of all kinds, and a good vintage year is sure to be a good seed year, but in the past summer there has been too little rain for the vines and for the seeds. The drought commenced in March, and the plants had but little time to get fairly established and well rooted before the struggle commenced. Still, some plants were able to live and produce very good seeds, although somewhat smaller than usual.

The season has not only been a disastrous one for this season's seed-producing plants, but the outlook for next



Photograph by H. N. King.

WOODLAND WITH RHODODENDRONS AT LEONARDSLEE, HORSHAM, SUSSEX.

season is extremely bad so far as biennials and perennials are concerned, growers being unable either to get the seed to germinate owing to the drought, or to plant out what they managed to grow from seed owing to the dry state of the land.

The harvest of seeds has been particularly early as crops have been hurried by the heat. In consequence, seedsmen are realizing the shortages of their crops some weeks sooner this year than is usual.

OUR SUPPLEMENTARY ILLUSTRATION.—No more charming woodland scenes are to be met with in this country than those at Leonardslee, Sussex, the seat of Sir EDMUND LODER, Bart. Our Supplementary Illustration represents not only the natural beauty due to the well-spaced Scotch Pines and other trees, but the enhanced effect produced by a judicious planting of under shrubs, including *Rhododendrons*, of which plants Sir EDMUND LODER is, as is well known to our readers, one of the most distinguished amateur raisers.

ROYAL HORTICULTURAL SOCIETY OF IRELAND.—The winter fruit and flower show of this Society will be held at Ballsbridge, on Wednesday and Thursday, October 18 and 19. Special prizes are offered by the Department of Agriculture and the Royal Dublin Society. A fruit conference will be held under the auspices of the Department of Agriculture, Ireland, on the second day of the show. Particulars may be obtained from the secretary, Mr. EDWARD KNOWLDIN, 5, Molesworth Street, Dublin.

THE "JOURNAL OF HORTICULTURE."—We are informed that Mr. J. HARRISON DICK, who has filled the office of assistant editor of our contemporary since the retirement of Mr. H. J. WRIGHT, has been appointed editor of that journal. Many of our readers will join with us in wishing Mr. DICK all success in his new post.

CULTURE OF VEGETABLES IN SHROPSHIRE.—In a recent article in the *Times* on agriculture in Shropshire the writer makes the following remarks in respect to the market cultivation of vegetables on a particular farm:—"Potatoes formed one of the most profitable crops on the farm, and were looking extremely well at the time of our visit, showing no effects of the drought, which, indeed, did not seem to have hurt the Swedes, though the Mangolds appeared a little short of growth. Potatoes sell well in the neighbouring markets of the Potteries and of the Black Country, the distant chimneys of which we could just see; and with this market at hand a good deal of vegetable growing was done on the root table, even some of the Swedes being sold for break when there was a scarcity of other vegetables. Carrots were a speciality; they required a deeply-worked fine soil that had been manured in the autumn, and they needed a great deal of labour because they had to be weeded and pulled by hand as well as repeatedly moulded up. As we saw them they were a very even crop, wonderfully clean, but they had not yet covered the ground as they would have done with a little more rain. Off the fine red land the Carrots pull with a good shape and a clean red colour, so that they can be bunched up straightaway without any washing. The cost of the crop is great, as much as £30 an acre, and there are years in which it sells very badly; not only must trade be good but Potatoes ought also to be cheap, for the working-man's household buys Potatoes first and Carrots only if there is some money left over. Another breadth was in Parsnips, again a speculative crop, even more so than the Carrots."

"THE ORCHID WORLD."—The October number of this useful publication gives a good account of the Glebelands collection of Orchids, together with an excellent portrait of its owner, J. GURNEY FOWLER, Esq., treasurer of the Royal Horticultural Society, and chairman of the board of directors of the International Exhibition of 1912. Illustrations of some of the rare *Odontoglossums* in the collection are also given, and notes on various new and rare Orchids, seasonal cultural directions, and reports of the Orchids shown at the exhibitions during the previous month. The present issue is the first of the second volume, and it may be said that the work, which was well commenced, has been well sustained.

FLOWERS AND FRUITS IN SEASON.—A box of autumn-tinted leaves, fruits, and flowers has been sent us by Mr. T. SMITH, of Daisy Hill Nursery, Newry. We were not surprised to find that it contained many interesting and uncommon subjects. In a note on the various plants enclosed, Mr. SMITH states that "autumn tinting has been very beautiful this season, especially in *Ribes aureum*, *R. floridum*, *Vaccinium stamineum*, *Berberis virescens*, and *Pyrus arbutifolius* Brilliant. The bluish-black fruits of *Cornus Amomum* have been very plentiful. Plants of *Delphinium* "Fanny Stormouth" are flowering as freely as they did in July; the variety is an improvement on D. Bella Donna. *Crocus speciosus* Aitchisonii is one of the most beautiful of the autumn-flowering sorts; its white form is very pure. *Viola bosniaca* is a gem for a shady nook in the rock-garden, where it will continue to flower for several months. *Kniphofia modesta*, with wand-like spikes of white flowers, is blooming very freely. It requires a warm corner against a sunny wall. *Clerodendron trichotomum* has been in flower for almost a month, the hot summer having suited it. *Escallonia languageana* is flowering again, and very freely. Its pink counterpart, *E. hybrida* Edinburgh, is also a beautiful shrub. *Rosa nitida* is charming with its fruits and autumn colour as an edging plant, or for a dwarf group in the shrubbery border. *Colchicums* have all been good this season, and much earlier than usual. None has lasted so well as the double white form of *Colchicum autumnale*."

METROPOLITAN PUBLIC GARDENS ASSOCIATION.—The Metropolitan Public Gardens Association, at its monthly meeting, held at 83, Lancaster Gate, decided to plant trees at Wormholt Park, Hammersmith, and to grant requests made by local authorities for seats for thoroughfares in Greenwich and Malden, and for recreation grounds in Poplar and Cubitt Town.

ENGLISH GARDENS AND SCOTCH MOORS.—At the Ryder Gallery, Albemarle Street, Piccadilly, Miss HELEN M. BULKLEY is holding an exhibition of broadly-treated garden and landscape scenes in water-colour, which she calls "Impressions from Nature." These are interspersed with some clever studies of culled and garnered flowers, such as "Wallflowers and Primroses," "Daisies and Delphiniums," and, especially to be noted, a well-rendered study of "Rhododendrons." Of the garden scenes, perhaps the most delightful, in its fresh and sweet colour scheme, is the one which the artist found nearest home and at hand in the garden of "Blacknest Cottage." Tall, white Lilies vie with sky-blue Delphiniums in representing "Heaven's Colours on Earth," and at the same time illustrating that line of Tennyson which the artist has applied to another picture in her collection, "Hyacinths—that seemed the heavens unbreathing through the earth." Both these pictures charm by the harmonious blending of the sky colours of white and blue with the cool and

dark-green background of the trees and shrubs which surround them. But Miss BULKLEY's broad method and wide outlook at Nature find a truer field and scope when she goes for her subjects to the wide and wind-swept, mist-blurred Scottish moors and hills. Landed by grey hills in ever-fading distances to the dim horizon; but, in the near foreground, upheaving at one's feet, in splashes and waves of bright crimson or russet heather against the grey, mouldering rocks; in the middle distance sometimes a touch or curve of silvery, winding river or line of sea. Of such subjects in her little collection are to be specially noted: "A Soft Day in Perthshire," "Heather and Mountains, Morar," "Morar Hills from Aisaig," "Rocks and Heather near Brocara," and several other scenes, the names quite familiar to lovers of Scotland and fine scenery. Nearing home again, Miss BULKLEY lands us in "The New Forest near Brockenhurst," where, doubtless, she painted her "Old Beech Tree," and then back again to peaceful, rural Berkshire, and on "Crookham Common" (of which she shows several excellent sketches, notably "Clearing, after Rain"), again we find the familiar Ling or Heather, which from Iona to Land's End crimson the grey rocks of the British Isles in summer and clothes them in winter with that russet mantle which the true landscape artist prefers to the more showy summer glory. And though the banks and braes, the muirs and mountains of "Bonnie Scotland" are not to be gainsaid of their beauty, England can still hold her own in charms which are peculiar to herself, and shake hands with Scotland over the Heather which favours both countries in due season. Before leaving the gallery, the visitor should note three or four "interior" sketches, which show the artist's achievements in another genre.

THE "TIMES" EXPERIMENTAL STATION.—Mr. HARRY FOSTER, son of the late Mr. CHARLES FOSTER, has been appointed Director of the *Times* Experimental Station, Sutton Green, Guildford. Mr. FOSTER has experience of the work, for during the long illness of his father he superintended the general work of the Station, as well as the trials of the National Sweet Pea and Vegetable Societies. Mr. FOSTER completed his education at the Reading Collegiate School, subsequently gaining experience at Wisley and under his late father at the Station to the directorate of which he is now called.

SMALL HOLDINGS CONGRESS AT THE FESTIVAL OF EMPIRE.—A small holdings congress will be held at the Crystal Palace, on October 18, 19, 20, in connection with the Festival of Empire exhibition. Lord CARRINGTON, the President of the Board of Agriculture and Fisheries, will deliver the inaugural address. Subjects for discussion have been arranged in the following order: Opening day, Lord CARRINGTON's address and a discussion on "Credit, as Applied to Small Holdings." October 19, "Production and Co-operation," "Marketing and Transportation." October 20, morning, "Equipment of Small Holdings"; afternoon, "Education, from the Small Holder's Standpoint." The secretary of the congress is Mr. W. H. JONES, Festival of Empire, Crystal Palace.

THE ULLSWATER FORESHORE.—In a letter to the *Times* on Saturday, October 7, Canon RAWNSLEY announces that the purchase money for the Ullswater foreshore has been raised, and that the beautiful strip of Glencoin woodland that runs northward from Stybarrow Crag, between the main road and the lake, will henceforth be open to the public under regulation of the National Trust. Among the subscribers are cottagers and miners in Patterdale and factory hands at Leeds.

YORKSHIRE FUNGUS FORAY.—The members of the Mycological Section of the Yorkshire Naturalists' Union held their annual fungus foray on September 23-27, thanks to the continued kindness and interest taken in the subject by the Rev. the Marquis of NORMANBY, in Mulgrave Woods, at Sandstead, near Whitby. These ancient and charming woods, situated near the sea, and intersected by streams, are practically independent of weather conditions, so far as moisture is concerned, and, contrary to the experience of mycologists working in other parts of the country, the number of species discovered was practically equal to that observed on previous visits; in fact, many of the larger species, that would have been most affected by the severe drought, were very much in evidence. Many luxuriant specimens of *Tricholoma patulum*, some measuring 8 inches across, were collected, also fine specimens of the rare and beautiful *T. hordum*. *Entoloma lividum* was also found. The number of species observed exceeded 450, of which 150 were additions to the district. Three species new to Britain were collected—*Collybia phaeopodia*, Fr., *Pluteus sororius*, Karst., and *Hypholoma alcopodium*, Fr. Two species new to science, belonging to *Phiteolus* and *Clavaria* respectively, remain to be described. The primary object of the frequent visits to Mulgrave Woods is not so much to add new county or British records, as to endeavour to gain some insight into the ways and doings of fungi, matters which, up to the present, have been neglected. On Wednesday afternoon the members were entertained at tea at Mulgrave Castle by Lord and Lady NORMANBY.

PUBLICATIONS RECEIVED.—*New York Agricultural Experiment Station, Geneva, N.Y.* Bulletins: A Contribution to the Life-History, Parasitism, and Biology of *Botryosphaeria Ribis*, by J. G. Grossenbacher and B. M. Duggar; and Is It Necessary to Fertilise an Apple Orchard? by U. P. Henrick. (Geneva, N.Y.: New York Agricultural Experiment Station.)—*New Hampshire Agricultural Experiment Station* Bulletin: Fruit Bud Formation, by B. S. Pickett. (Durham, New Hampshire: New Hampshire College of Agriculture.)—*Journal of the Royal Horticultural Society*. October. (London: Spottiswoode & Co., Ltd.) Price to Non-Fellows, 5s.—*The Agricultural Journal of the Union of South Africa*. September. (Pretoria: The Government Printing Office.)—*The Tropical Agriculturist of the Ceylon Agricultural Society*. September. (Colombo: A. M. & J. Ferguson.)—*The Queensland Agricultural Journal*. August. (Brisbane: Anthony James Cunningham.)—*The Journal of Botany*. October. (London: West, Newman & Co.) Price 1s. 8d.

Obituary.

SIR CHARLES LAWES-WITTEWRONGE.—Sir Charles Lawes-Wittevronge, son of Sir John Lawes, of Rothamsted, died at Rothamsted on Friday, October 6. The deceased baronet, who was in his 68th year, achieved distinction as an athlete and as a sculptor. He was keenly interested in the work of the Rothamsted Experimental Station, and was at the time of his death chairman of the Lawes Agricultural Trust. He is succeeded by his only child, John Prennet Fountaine, who was born in 1872.

JOHN E. HAINES.—John E. Haines, one of the oldest florists in the State of Pennsylvania, U.S.A., died on September 11 at his home at Bethlehem. He raised many varieties of Carnation and was a prominent member of the American Carnation Society.

NICHOLAS P. REDDY.—Mr. Nicholas P. Reddy, florist, Fall River, Massachusetts, U.S.A., died at his residence, 32, Laurel Street, on September 17, following a brief illness. Mr. Reddy was born in Dublin, and settled at Fall River about 40 years ago.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

SEPTEMBER 28.—*Committee present:* Rev. J. Crombleholme (in the Chair); and Messrs. R. Ashworth, W. R. Lee, C. Parker, H. Thorp, Z. A. Ward, J. Cypher, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, W. Stevens, and H. Arthur (secretary).

W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse), was awarded a Silver Medal for a group of plants, consisting of Cattleyas and *Cypripedium*, the most noticeable being *Cattleya* St. Gothard, *C. Iris* var. "Cesar," *C. Iris* var. "Ixion," *Cypripedium Boltonii* and *C. gigas* "Cordean Hall" variety.

Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), was awarded a Silver Medal for a group of *Odontoglossum grande*, with Cattleyas and *Cypripediums*, making a fine display.

J. McCARTNEY, Esq., Bolton (gr. Mr. Holmes), exhibited a good group, to which a Silver Medal was awarded. It consisted principally of Cattleyas and their hybrids, including John Baguley, Mrs. Pitt, Princess Patricia, and Minuca; several *Cypripediums*, including *C. callosum* Sandere, were also exhibited by Mr. McCARTNEY.

Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), was awarded a Bronze Medal for a small mixed group, in which were observed a fine form of *Cattleya* Mazoni, *Odontoglossum ardensissimum*, *O. crispum*, *Lycaste Skinneri* alba, and several choice *Cypripediums*.

J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson), staged splendid forms of *Cattleya Iris* var. "Golden Queen," *C. Adula* "Auburn House" variety, and a plant of *Cypripedium Juliet*.

WM. THOMPSON, Esq., Walton Grange, Stone (gr. Mr. Stevens), showed *Cypripediums* Germain Opox and Gaston Bultel, both very fine forms.

H. J. BROMILOW, Esq., Rann Lea (gr. Mr. Morgan), staged a good plant of *Cypripedium Germain Opox*.

Messrs. STUART LOW & Co., Bush Hill Park Nurseries, Enfield, exhibited a fine form of *Cattleya Hardyana* var. "Enfieldensis" and *C. Gaskelliana* var. "Delight," both of which received Awards.

Messrs. A. J. KEELING & SONS, Bradford, showed *Cypripedium Acteus* "Westgate" variety, and a hybrid from *C. Curtisii* × *C. vexillarium*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya "St. Gothard."—A noble flower, very evenly colored, and with a rich lip.

C. Iris var. "Cesar."—A well formed flower, the almost round sepals and petals being plum color, with a deeper-colored lip. Both from W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse).

C. Hardyana var. "Enfieldensis."—A fine large flower, of good colour, and well marked in the lip. From Messrs. STUART LOW & Co.

AWARDS OF MERIT.

Cattleya Iris var. "Ixion." from W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse). *C. Germanica*; *C. Iris* var. "G. Weatherby," one of the largest forms of the type yet seen; *Cypripedium Euryades* × *Parkerianum*, a massive bloom, following almost entirely the *Parkerianum* parent, these three from Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby). *Cattleya Iris* var. "Golden Queen," and *C. Adula* "Auburn House" var., these two from J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson). *C. Gaskelliana* var. "Delight," a pleasing flower with white sepals and petals and faintly marked lip, shown by Messrs. STUART LOW & Co., Enfield. *Cypripedium Acteus Westgate* var., and *C. Curtisii* × *vexillarium*, both from Messrs. A. J. KEELING & SONS, Bradford.

SCOTTISH HORTICULTURAL.

OCTOBER 3.—The monthly meeting of the above association was held in the Goid Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. Massie, the President, was in the Chair, and there was an attendance of 105 members.

The evening was devoted to a conference and discussion on early-flowering Chrysanthemums,

and, notwithstanding the unfavourable season for outdoor plants, there was a fairly good representative display of these flowers exhibited by Messrs. DOBBIE & Co., Mr. JAMES BRUCE, Messrs. TODD & Co., and Mr. JOHN DOWIE. The discussion was opened by Mr. Berry, Edinburgh, and East of Scotland College of Agriculture, and the other speakers were Messrs. Todd, Cuthbertson, D. W. Thomson, Bruce, Wood, Smale, Fraser, Proctor, Porter, Taylor, and Miss Burton. At the conclusion of the discussion, Mr. Cuthbertson suggested that the members and others should send to the secretary the names of what they considered the best dozen early-flowering varieties, and that when these returns were tabulated the result be sent to the Press. Mr. Cuthbertson's suggestion was adopted, and the Chairman invited those present to act upon it. There was some difference of opinion as to whether the single early-flowering varieties were much wanted, but all agreed that the late-flowering singles grown under glass were much finer than the early out-door sorts.

Mr. Todd drew attention to the excellent qualities of the early-flowering varieties of the exhibition type, such as *El Draco*, and Mr. Cuthbertson referred to areas of several acres of these being grown in special frames near London for market purposes. Several advocated the planting to be done in the beginning of June, but the majority were in favour of doing it at the end of April or the beginning of May.

Messrs. DOBBIE & Co. showed *Collarette Dahlias* and a new early-flowering *Chrysanthemum* named "Cynthia." The adjudicating committee awarded First-class Certificates to *Collarette Dahlias* "Hollyrood" and "Prince Charlie," and Certificates of Merit to "Diadem," "Prince de Venosa," and "Maurio Riviere."

At the meeting on November 7 a paper on "Propagation" will be given by Mr. Wm Roadley, Comely Bank Nursery, Edinburgh.

NATIONAL FRUIT GROWERS.

At a recent meeting of the National Fruit-growers' Federation, the report of the committee on railway agreements and amalgamations urging, amongst other things, important alterations in reference to owners' risk and other clauses in the railway rates, was adopted, and the President (Mr. C. S. Martin) and the Secretary were appointed delegates to attend a special conference with the President of the Board of Trade on the subject.

The report of the deputation to the Treasury with regard to the giving of increased facilities for the growing of Tobacco for insecticidal purposes was approved and adopted.

Several members complained of the serious loss resulting from the delay in the transit of fruit and marketable produce during the past season, and especially in the return of growers' "empties." A resolution dealing with this subject and also a protest against any increase in the rates for the carriage of English fruit and vegetables was passed.

NATIONAL DAHLIA.

OCTOBER 1.—Members of the Executive Committee of the above Society inspected, on this date, the trials of decorative and garden Dahlias carried out on behalf of the Society by Messrs. H. Cannell & Sons, Swanley, Kent. The plants were in an excellent condition, notwithstanding the hot, dry season. Awards of distinction (xxx.) were given to the following varieties for their free-flowering habit and their decorative effect in the garden:—

Paeony-flowered varieties: Golden West, South Pole, Geisha, Glenton, Mme. J. Coissard, and Dr. Hogg.

Collarette varieties: Negro, Mme. Porrier, Mons. Hugonard, A. Normene, H. Tarne, Mr. E. D. Till, and Souvenir de Chanbanne.

Giant decorative varieties: Ethel May, F. Grinstead, Le Grand Maniton, Papa Charmet, Phenomane, and Gloire Lyonnaise.

Giant single varieties: Mrs. W. C. Jackson, White Cloud, and Evelyn Jackson.

Garden Cactus varieties: Amos Perry, Effective, Decorative, and Kaiserin Augusta Victoria.

Exhibition of British-Grown Fruits.

OCTOBER 10, 11.



THE Royal Horticultural Society's autumn show of British-grown fruits was held on Tuesday and Wednesday last in the Society's hall, Vincent Square, Westminster. Apples dominated everything else, there being marvellous exhibits of these fruits, although it was a matter of surprise to some visitors that the

colour was not more pronounced. Pears also were very good, and the Grapes rather better than usual. But dishes of Apples and Pears repeated in almost unlimited numbers do not lend themselves to making an exhibition capable of attracting many visitors beyond traders and exhibitors. The two displays of pot fruit trees, relieved by dishes of gathered fruits, made a pleasing change from the long rows of dishes, and there were two classes for collections of dessert fruits cultivated indoors, but other than these there was very little to provide good effects. Decorated tables of dessert fruit are always popular, and a class for these would add to the attractiveness of the show. Baskets of choice fruits arranged in the same manner as they are so temptingly displayed by the florists in their windows might provide further variety. The ornamental value of fruits is overlooked by the schedule, for no provision is made for the great number of Crabs and species of Prunus, which are very beautiful objects when seen in sprays.

The Fruit and Vegetable, Floral, and Orchid Committees all met at noon on the first day for the purpose of considering novelties.

The FRUIT COMMITTEE awarded an Award of Merit to a market variety of *Chamaecrista* and a dwarf decorative *Dahlia*, whilst the ORCHID COMMITTEE granted three First-class Certificates. The arrangements were, as usual, perfect, and being always so at these R.H.S. shows, there is a danger of the hard work of the superintendent, Mr. Wright, the secretaries, and other members of the staff, being overlooked.

DIVISION I.

COLLECTION OF HOTHOUSE FRUITS.

(OPEN TO GARDENERS AND AMATEURS ONLY.)

In the class for a collection of nine dishes of ripe dessert fruits, to include six kinds at least, and not two dishes of the same variety, there were five exhibits, the whole making a magnificent display of choice fruits. There were two outstanding collections, those shown by the Earl of HARRINGTON, Elvaston, Derby (gr. Mr. J. H. Goodacre), and the Duke of NEWCASTLE, Clumber, Worksop (gr. Mr. S. Barker). The 1st prize was awarded to the Earl of HARRINGTON, whose bunches of Muscat of Alexandria were amongst the finest in the show. The other Grape was Black Alicante, with solid, compact bunches, and a fine bloom on the berries. Amongst the other kinds was a splendid dish of Cox's Orange Pippin Apples, a beautiful fruit of Countess Melon, a good sample of Doyenné du Comice Pears (not quite ripe), Princess of Wales and Golden Eagle Peaches (the latter variety having the finer appearance), Victoria Nectarine, and Pitmaston Duchess Pear. The Duke of NEWCASTLE was awarded the 2nd prize, his Grapes being smaller, but the bunches of Madresfield Court were well matched and Muscat of Alexandria had rich, amber-coloured berries. Very large fruits of Doyenné du Comice and Emile d'Heyst Pears, a scarlet-fleshed Melon, a good Golden Eagle and Nectarine Peaches, large Cox's Orange Pippin Apple, and mellow fruits of Ribston Pippin Apple completed the collection. 3rd, C. A. CAIN, Esq., The Node, Welwyn, Hertfordshire (gr. Mr. W. Pateman).

In the similar but smaller class for six dishes, there were four competitors, the 1st prize being awarded to G. MILLER, Esq., Newberries, Radlett (gr. Mr. J. Kidd), whose Grapes were very large bunches, although not over large in berry. Those of Muscat of Alexandria looked very tempting, the berries being perfectly ripened. The other Grape was Black Alicante. Countess Melon

was arranged in the centre of the collection, with dishes of Cox's Orange Pippin and Ribston Pippin Apples and Pitmaston Duchess Pears in front. The 2nd prize was awarded to the Marquis of SALISBURY, Hatfield House, Hertfordshire (gr. Mr. H. Prime). There was an excellent dish of Souvenir du Congrès Pears in this exhibit. 3rd, Lord HOWARD DE WALDEN, Audley End, Saffron Walden (gr. Mr. J. Vert).

GRAPE CLASSES.

The exhibits of Grapes were better than is usual at these exhibitions, and very good competition resulted in the 10 classes. The most important one was for two bunches each of five distinct kinds; there were three exhibits, and all were so good, the judges recommended an extra prize. The premier collection was shown by the Earl of HARRINGTON, the varieties being Madresfield Court, Muscat of Alexandria, Black Alicante, Muscat Hamburg, and Chasselas Napoleon, which were very choice. The "Muscats" were large and the black kinds very finely finished. 2nd, the Duke of NEWCASTLE, whose exhibit was dominated by two exceptionally big bunches of the Barbarossa or Gros Guillaume variety. Madresfield Court was perfectly finished, but the bunches lacked size. Black Hamburg was excellent. 3rd, Mr. G. MILLER, whose bunches were matched well, those of Lady Downes being very even in this respect; they were long, tapering bunches. Black Alicante and Appley Towers were shown well by this exhibitor.

In the class for four varieties, Lord HILLINGDON, The Wildernesse, Sevenoaks (gr. Mr. J. Shelton), was the only exhibitor, and was awarded the silver cup offered as the 1st prize. Muscat Hamburg was excellent, and the other sorts were Muscat of Alexandria, Madresfield Court, and Mrs. Pince, in each case compact and well-finished bunches were staged.

The following classes were for stated varieties; two bunches of each variety:

Black Hamburg.—This popular Grape was shown by eight exhibitors, and the 1st prize was awarded to the largest bunches shown by Lord HILLINGDON; 2nd, Rev. W. BECKER, Newark (gr. Mr. A. Heald); 3rd, Earl of HARRINGTON.

Mrs. Pince.—Much the finest bunches of this variety were shown by Lord SAVILE, the berries being well coloured, whereas in most cases they had a "foxy" appearance; 2nd, Mrs. O. E. GOLDSMID, Tonbridge, Kent (gr. Mr. C. Earl), whose berries were the largest shown.

Black Alicante.—This proved a strong class, there being ten exhibits, and all were uniformly good, the berries being a dark colour with good bloom. The 1st prize was won by Mr. MILLER, and the 2nd prize by W. JAMES, Esq., West Dean, Chichester (gr. Mr. W. H. Smith).

Madresfield Court.—Amongst five competitors in this class, the Earl of HARRINGTON proved successful in gaining the premier position with small bunches of magnificent quality. The Duke of NEWCASTLE, who showed larger bunches, was placed 2nd, and Lord HILLINGDON 3rd.

Prince of Wales.—This large-berried variety was best shown by Lord SAVILE, the individual berries being as large as small Plums; 2nd, Earl STANHOPE, Cheltenham, Sevenoaks (gr. Mr. J. C. Sutton). There were four exhibits in this class.

Muscat of Alexandria.—There were six exhibits of this variety, the premier exhibit being shown by Sir E. DURNING LAWRENCE, Bart., King's Ride, Ascot (gr. Mr. W. Lane); 2nd, the Earl of HARRINGTON; 3rd, Mrs. O. E. GOLDSMID.

Any other black Grape.—The best variety in this class was Muscat Hamburg, shown by the Earl of HARRINGTON; 2nd, Appley Towers, shown by Mr. MILLER.

Any other white Grape.—The winning variety was Dr. Hogg, shown by Lady TATE, Park Hill, Streatham Common (gr. Mr. W. Howe); 2nd, Buckland Sweetwater, shown by the Duke of NEWCASTLE; 3rd, Foster's Seedling, shown by Mr. H. W. HENDERSON, King's Langley (gr. Mr. F. L. Pike).

COLLECTION OF HARDY FRUIT.

This class was for a collection of hardy fruits, comprising 30 dishes, arranged in a space of 12 feet by 5 feet. There were three exhibits, the same number as last year, and the 1st prize-winner of last year, Col. A. C. BORTON, Cheveny, Hinton, Kent (gr. Mr. J. Whittle), was again successful. He showed magnificent fruits, especially Apples. Emperor Alexander, Lord Derby, Mère de Ménage, Peasgood's Nonesuch, Belle Dubois and Bismarck (culinary), and Cox's Orange Pippin, Charles Ross and Rival (dessert), being all outstandingly good. Splendid Pears were seen in the varieties Durondeau, Marguerite Marillat, and Doyenné du Comice. The best Peaches were Walburton Admirable and Gladstone. There were also Quinces, Damsons, Blackberries, and Nuts. The 2nd prize was awarded to Sir MARCUS SAMUEL, Bart., Maidstone (gr. Mr. W. H. Bacon), who had greater variety, the kinds including Apples, Pears, Figs, Cherries, Peaches, Apricots, Plums, Damsons, and Nuts. The best dishes were Cox's Golden Drop Plums, Lord Derby, Warner's King, Harvey's Wiltshire Defiance, and Charles Ross Apples; Marguerite Marillat, Doyenné Boussoch and Souvenir du Congrès Pears, and Pineapple Nectarines. 3rd, Major POWELL COTTON, Quex Park, Thanet (gr. Mr. F. Cornford), who had very large Apples, good Monarch Plums, and Princess of Wales Peaches.

DIVISION II.

NURSERYMEN'S CLASSES.

FRUITS GROWN ENTIRELY OUT-OF-DOORS.

The five large exhibits of fruit grown entirely out-of-doors, each occupying 30 feet run of 6 feet tabling, contained an enormous number of excellent fruits. Apples largely predominated. The huge, brilliantly-coloured varieties such as Gascogne's Scarlet Seedling, Mère de Ménage, and Bismarck were cheek by jowl with very rosy, smaller-fruited sorts such as Duchess's Favourite, Worcester Pearmain, and Rival; all of these catch the eye and for the moment eclipse the Apples of more sober exterior, but often of greater dietetic value. As was also the case with very many of the Apples shown in other classes, the fruits bore an attractive covering of bloom, which in former years would have been assiduously polished away. It was a good sign of the trend of the times to notice that the leading growers do not now stage dishes of which one or two fruits are disproportionately large, but confine themselves to even sets of fruit which are of high quality and good finish. Pears were comparatively few in numbers, but those shown were nearly all very fine and of good shape. It was remarkable that this premier class for hardy fruits would give the impression that, beyond Apples and Pears, there was really no other fruits in season worth exhibiting. A few Medals were shown in most of the exhibits in a somewhat apologetic manner, and these were decidedly small; whilst one exhibitor was sufficiently enterprising as to include Walnuts and Cobnuts. A stranger visiting this show would paradoxically conclude that our leading nurserymen only find it profitable to grow Apples or Pears, and that late Plums, the hardy Grapes, Nuts of various kinds and the Quince were not worth cultivation.

The exhibit shown by Messrs. GEO. BUNYARD & Co., Maidstone, for which the Gold Medal of the Society was awarded, included three candlebrum-like stands, holding choice dessert Apples, raised above the level of the other dishes, which were arranged in three tiers. These stands very effectively broke the level, and added a dignity to the exhibit. The many brilliantly-coloured Apples included perfect examples of Calville Rouge Précoce, The Houblon, Rival (which is an Apple with a promising future), Lady Sudeley (useful for table and kitchen alike, and uncommonly well-coloured), Sops in Wine, as deep-red, is a most attractive Apple, the rich, deep-red colour being very tempting. The name, however, seems to be

employed for many distinct Apples in various localities. Transparent de Croncelles was represented by a splendid dish of delicately-tinted golden fruits.

Besides containing many very fine fruits of well-known varieties, the exhibit from Messrs. CANNELL & SONS, Swanley, had an interesting sprinkling of rarer sorts. Neidwetziana is a Russian Apple, the fruit is small and somewhat uneven, but it possesses a very rich red colour, which permeates the flesh. It is a dessert fruit, of very fair quality. Ligne Tillich is another Russian variety. The large, yellowish fruits are said to be very good cookers, and above the average for dessert purposes. Blue Pearmain is a large cooking Apple, which has a dense blue bloom. Brabant Bellefleur is also covered with a delicate bloom. London Pippin is a very old Apple and an excellent keeper. Praise d'Hoffinger is a handsome fruit, possessing a dense bloom. Medlars, Walnuts, and Cohs were also shown in this collection.

The King's Acre Nursery Co., Hereford, relied chiefly on the fine Apples. Queen Caroline, Cherry Pearmain, and Devonshire Red (with intense colour), Lady Henniker (a good dish of fruits, of typical shape), Bielo Borodawa (a golden fruit, medium size, striped with red), Credenhill Pippin, and Rosemary Russet (a fine, late, dessert Apple) were all well shown. This exhibit included some very large Uvedale's St. Germain Pears.

Messrs. W. SEABROOK & SONS, The Nurseries, Chelmsford, had rather more Pears than most competitors; the varieties Louise Bonne de Jersey, Fertility, and Marie Louise d'Uccle were excellent, as also was a good basket of the stewing variety Vicar of Winkfield. Amongst the many good Apples, Royal Jubilee (with golden colour), The Queen, Lady Sudeley, and a very fine dish of Annie Elizabeth were particularly noticeable.

Messrs. J. CHEAL & SONS, Crawley, relieved their table with pot plants of various kinds. Their Apples included Colonel Vaughan, Lord Lennox, Mabbott's Pearmain, and Cowan's Victoria amongst the smaller and brightly-coloured dessert kinds. The cooking varieties Bismarck, Dumelow's Seedling, Loddington Seedling, Yorkshire Beauty, and Atalanta were noteworthy.

Collection of hardy fruits on a space of 20 feet by 6 feet.—There were only two exhibitors in this class, but from a spectacular point of view the arrangement of Messrs. LAXTON BROS., Bedford, which received the Hogg Memorial Medal, was the finest in the show. Graceful specimens of Cocos Weddelliana surmounted a fine display of attractive fruits, tastefully blended with autumn foliage. Of the many choice Apples, we especially noted Parquet, Allington Pippin, King of the Pippins, Early Strawberry, Summer Golden Pippin (which fruits so regularly in the West of England), immense fruits of Peasgood's Nonesuch, and a splendid dish of Ribston Pippin. The Pears included very large Marguerite Marillat, Williams's Bon Chrétien (just fit to be eaten), and Triomphe de Vienne. In the collection shown by Mr. R. C. NOZCUTT, Woodbridge, for which a Silver Knight Medal was awarded, the yellow-coloured Apples were most noticeable. These included Royal Jubilee, Golden Noble, Potts's Seedling, and Yorkshire Beauty.

Collection on a space of 12 feet by 6 feet.—This class attracted four competitors. Messrs. COOLING & SONS, Bath, were awarded a Silver Knight Medal for a well-arranged collection. It was difficult to pick out a weak dish in this exhibit, which contained several dishes of Medlars and Barcelona Cobnuts, in addition to the Apples and Pears. The variety of Apple Tom Putt, which is not so much grown as formerly, was shown in almost perfect form and colouring. Hoary Morning is another desirable kind, as also is Evry's Seedling, both of which were very well shown.

Messrs. PAUL & SONS, Cheshunt, brightened their display with fruiting sprays of Crataegus Pyracantha, and with leaves of a scarlet Oak. Besides splendid fruits of the standard varieties of Apple, we noted Betty Geeson (a good kitchen Apple, which will keep till May), Colonel Vaughan (a small, bright, dessert Apple), Pomme de Neige (an old variety, often shown as Royal Snow), Herefordshire Beefing, and Cellini, as being especially good.

Messrs. JOHN PEED & SON, West Norwood, staged their collection on high stands interspersed with Palms and Codieums. Although

small in numbers, this collection contained meritorious fruits. The Apples were of good form and well coloured. Grand Duke Constantine, a handsome Apple, which, however, soon becomes mealy, and Wadhurst Pippin, a late, cooking Apple, of good size, were very striking in appearance.

Messrs. SPOONER & SONS, Hounslow, included in their collection Vicar of Beighton, Golden Spire, Brownlee's Russet, and Hollandbury, a very old, handsome Apple, which is in season from now until Christmas.

ORCHARD HOUSE FRUIT AND TREES.

The two collections of orchard house fruit and trees attracted two exhibitors, each exhibit being characterised by the wonderful colour of the Apples.

The exhibit from Messrs. T. RIVERS & SON, Sawbridgeworth, made a fine show. The pot trees bore good crops of high-class fruits; the high colour of such Apples as Gascoyne's Scarlet Seedling, Cox's Pomona and James Grieve were the subject of general comment. The Pear trees included such sterling kinds as Conference, Pitmaston Duchess and Durondeau, besides a heavily-fruited example of St. Edmund. The growing Plums shown were Monarch and President. In front of the pot trees there were many baskets of ripe Apples, Pears and Plums. Here, again, the high colour, especially that of some excellent specimens of Cox's Orange Pippin astonished many of the visitors, who were not aware of the cultural conditions. Emperor Alexander, Reinette Descarde, a good basket of Ribston Pippin and King of Tompkins County also bore very high colour. Other varieties of Apple, Allington Pippin and The Queen, for example, had a beautiful transparency. Amongst the Pears were Parrot with bright colour, Marguerite Marillat, and Souvenir du Congrès, especially good. Two varieties of Peach, Salwey and Golden Eagle, were shown. The 2nd prize collection, from the KING'S ACRE NURSERIES, Hereford, was brightened by autumn foliage of many kinds. Here, again, the pot trees shown had clean, healthy growth, which bore numbers of well-coloured fruits. Apples predominated, and included American Mother, Cox's Orange Pippin, Jonathan, and James Grieve of high quality. One bush bore several very large fruits of Gloria Mundi. Several single-stemmed plants of Fig Black Bourjassotte with ripe fruits added to the value of this exhibit. Amongst the dishes of gathered fruits Gascoyne's Scarlet Seedling, Charles Ross, Wealthy and a quantity of Ribston Pippin Apples were especially noteworthy.

Messrs. T. RIVERS & SON were the only exhibitors of vines growing in pots. This firm showed two well-fruited plants of Black Alicante, two of Gros Colman, and two of Golden Queen.

DIVISION III.

(OPEN ONLY TO MARKET GROWERS.)

The class for 20 baskets of cooking and dessert Apples made a splendid display. The Society's Silver-gilt Medal was awarded to Mr. H. T. MASON, Hampton Hill, Middlesex, for an exceedingly meritorious collection, such varieties as Cox's Orange Pippin, The Queen, and Barnack Beauty were as good as one could wish.

Mr. E. W. CADDICK, Ross, Hereford, was awarded a Silver Knight Medal; his collection was also very good, and contained fruits which would find a ready sale at remunerative prices. The varieties Wellington, Warner's King, Caradoc Scarlet, and Cox's Pomona were especially choice.

Mr. MASON also won the Silver-gilt Medal presented by the Fruiters' Company for the best 12 baskets of Apples with another highly-coloured collection of good fruits, the outstanding varieties being Ribston Pippin, James Grieve, Peasgood's Nonesuch, Cox's Orange Pippin, and Bismarck.

The SWANLEY HORTICULTURAL COLLEGE was awarded a Silver Knight Medal for an exhibit which included fine fruits of Royal Snow, Peasgood's Nonesuch, and Worcester Pearmain.

A Silver Banksian Medal was awarded to Mr. H. LUMLEY WEBB, Sittingbourne, whose round hampers showed good packing. The variety Worcester Pearmain was especially fine. There were no baskets of Pears exhibited in this division.

DIVISION IV.

FRUITS GROWN ENTIRELY IN THE OPEN.
(OPEN TO GARDENERS AND AMATEURS ONLY.)

In this division the premier class for 24 dishes of Apples, 16 cooking and eight dessert varieties grown in the open air, brought together such remarkably fine collections that the judges awarded prizes to each of the five competitors. The exhibit from Col. BORTON, Hutton (gr. Mr. J. Whittle), was a superlative effort, and deservedly received the 1st prize and the Hogg Memorial Medal. Many of the varieties shown were of great size, but at the same time were of typical shape and free from blemishes. Emperor Alexander, Allington Pippin, King of Tompkins County, King of the Pippins, and Gascoyne's Scarlet Seedling are a few of the very best of this excellent exhibit. The 2nd prize was awarded to Sir MARCUS SAMUEL, Bart., Maidstone (gr. Mr. W. H. Bacon), whose fine collection included remarkably good fruits of Washington, Rival, Mère de Ménage, Blenheim Pippin, Ribston Pippin, and Charles Ross. Equal 3rds, Mr. H. W. WHITELEY, Torquay, and Mr. C. R. ADEANE, Cambridge.

Eighteen dishes of Apples, distinct, twelve culinary, six dessert.—The 1st prize in this class was won by C. A. CAIN, Esq., Node, Welywn (gr. Mr. Pateman), who showed Cox's Pomona, Emperor Alexander, The Queen and Gascoyne's Scarlet Seedling (cooking); Rival, Barnack Beauty, Wealthy, and some very fine Cox's Orange Pippin (dessert Apples); 2nd, J. G. WILLIAMS, Esq., Pendley Manor, Tring (gr. Mr. Gerrish), with immense fruits of Peasgood's Nonesuch and Gascoyne's Scarlet Seedling.

Twelve dishes of Apples, distinct, eight culinary, four dessert.—The 1st prize was won by Major POWELL COTTON, Quex Park, Thanet (gr. Mr. F. Cornford). Here again Peasgood's Nonesuch was the outstanding cooking Apple. Fruits of Lady Henniker were of good size and very typical in shape. There were also good dishes of King of the Pippins and Charles Ross. The 2nd prize collection, from J. LIDDELL, Esq., Sheffield Manor, Basingstoke (gr. Mr. R. Learmonth), contained immense fruits of Peasgood's Nonesuch with very fine colour, whilst Cox's Orange Pippin looked as though they would keep firm for many months. King of the Pippins were very bright and good.

Six culinary Apples of distinct varieties.—The six dishes of cooking Apples from Col. BORTON were exceedingly fine. Emperor Alexander, Mère de Ménage and Belle Dubois being unusually good. The 2nd prize exhibit, shown by C. GURNEY, Esq., contained brightly-coloured fruits of Gascoyne's Scarlet Seedling and Peasgood's Nonesuch, whilst the comparatively rare Loddington Seedling was also good.

Six dishes, distinct, of dessert Apples. Col. BORTON also had the best six dishes of dessert Apples. This was an astonishingly fine collection; all the varieties (King of the Pippins, Allington Pippin, American Mother, Rival, Cox's Orange Pippin, and Wealthy) were worthy of mention. Mr. C. GURNEY's 2nd prize exhibit included a fine dish of the variety Wealthy.

Eighteen dishes of dessert Pears, distinct.—Although there were only two exhibitors in the class for 18 dishes of dessert Pears, there were many fine dishes of fruits displayed. The 1st prize was awarded to Sir MARCUS SAMUEL for a collection containing some unusually large Pears. The varieties Marguerite Marillat, Marie Benoist, and Pitmaston Duchess were immense specimens. Of the smaller and better-flavoured Pears Emile d'Heyst, Beurré Hardy, and Princess were especially fine. There were also good dishes of Durondeau and St. Luke. Col. BORTON was awarded the 2nd prize; his collection contained a good percentage of ripe fruits, Marie Louise, Beurré Superfin, Beurré Hardy, and Durondeau looked especially tempting.

Twelve dishes of dessert Pears, distinct.—Major POWELL COTTON was awarded the 1st prize for a good, even collection. Such varieties as Marguerite Marillat, Beurré Alexandre Lucas and Beurré Baltet Père were of high quality. 2nd, F. PATEMAN, Esq., who had very good dishes of Fondante Thiriot, Conseiller de la Cour, and Doyenné Bousscho.

Nine dishes of dessert Pears, distinct.—The premier exhibit, from the gardens of the Rt. Hon. W. H. LONG, was very attractively displayed on brightly-coloured Vitis leaves. This

1st prize collection included good dishes of Doyenné Boussoch, Marie Louise, and Beurré Hardy. 2nd, A. P. BRANDT, Esq., Bletchingley (gr. Mr. J. W. Barks).

Six dishes of dessert Pears.—The 1st prize in this class was awarded to C. GURNEY, Esq., for a collection of handsome fruits. Pitmaston Duchess and Marguerite Marillat were very fine. 2nd, Mr. G. MACKINLEY, Wrest Park Gardens, who had good, ripe fruits of Fondante d'Automne.

Three dishes of stewing Pears, distinct.—The Rt. Hon. W. H. LONG won the 1st prize for

wich (gr. Mr. W. Messenger), who had good dishes of President, Coe's Golden Drop, and Reine Claude de Bavi. That excellent variety Coe's Golden Drop was staged by 8 of the 12 exhibitors. Rivers's Late Orange, Diamond and Grand Duke were also shown in several instances. Colonel BORTON, the only exhibitor in the class for Damsons or Bullaces, staged three varieties (Bradley's King, Prune, and Crittenden's) of Damsons.

Cherries.—The 1st prize fruits of Morello Cherries, from J. G. WILLIAMS, Esq., were very creditable, but the other exhibits were poor.

The Houblon, Charles Ross, Allington Pippin, Ribston Pippin, Cox's Orange Pippin and James Grieve were the dessert Apples; Lane's Prince Albert, Mère de Ménage, Emperor Alexander, Peasegood's Nonesuch, Warner's King and Bramley's Seedling the cooking varieties. The Pears comprised Conference, Doyenné du Comice, Pitmaston Duchess, Durondeau, Hacon's Incomparable and Marguerite Marillat. 2nd, THE IPSWICH AND DISTRICT GARDENERS' AND AMATEURS' ASSOCIATION (Mr. F. W. Salmon, 65, Brooks Hall Road, Ipswich). The affiliated societies challenge cup, however, may be won

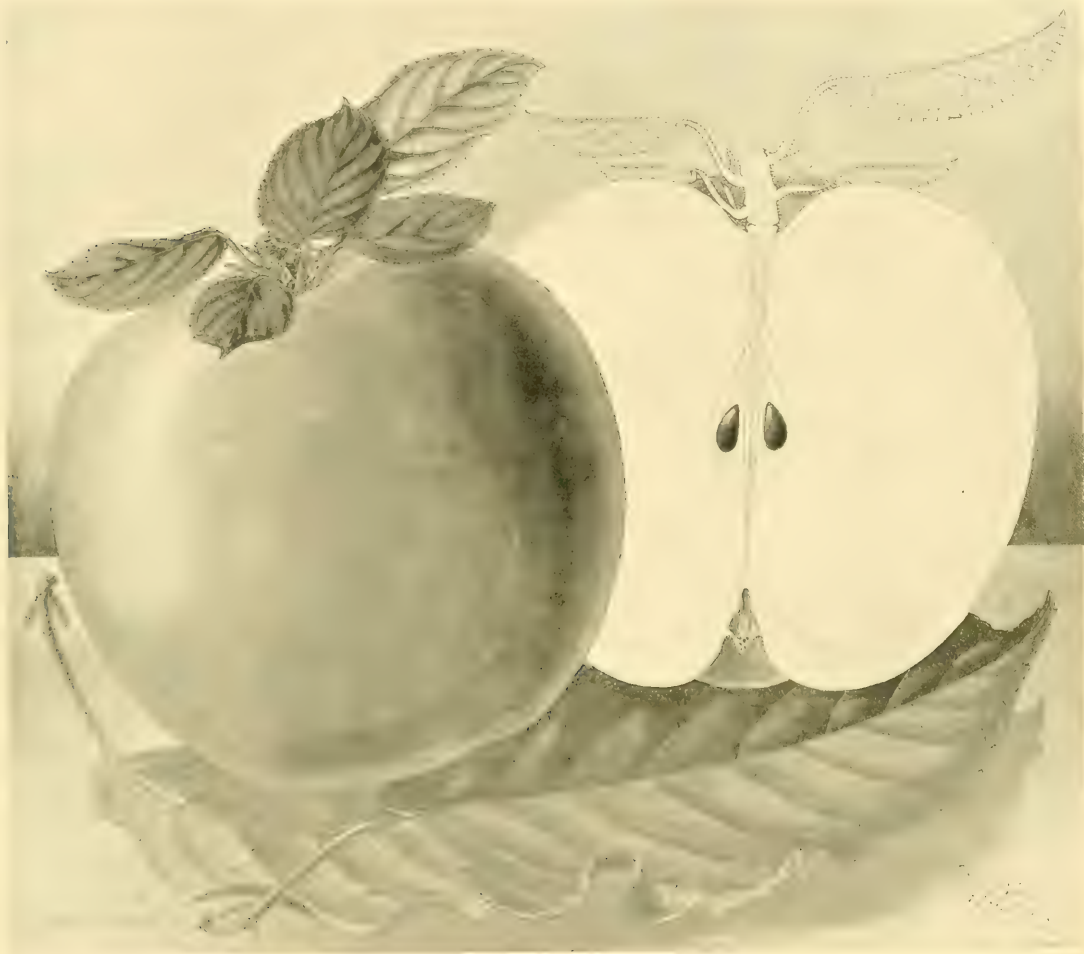


FIG. 123. APPLE CHARLES EYRE: A CULINARY VARIETY.

Received R.H.S. Asst. of Merit on September 12 (see p. 212 ante).

three dishes of stewing Pears with typical, good sized fruits of Catillac, Bellissime d'Hiver, and Beurré Clairgeau. Major POWELL COTTON was a close 2nd with the varieties Uvedale's St. Germain, Gilgil and Catillac.

Plums.—The class for three dishes of Plums was keenly contested, and there were many very good dishes of fruit staged. The 1st prize collection from Lord HOWARD DE WALDEN, Audley End, Saffron Walden (gr. Mr. J. Vert), was excellent. The variety Coe's Violet, which has a violet line running longitudinally around the fruit, attracted a deal of admiration. Primate and Coe's Golden Drop were also excellent. 2nd, C. H. BERNERS, Esq., Woolverstone Park, Ips-

AFFILIATED SOCIETIES CLASS.

There was a special class open only to horticultural societies in affiliation with the R.H.S. Societies, however, were not allowed to combine, and the fruits exhibited must have been collected only from the members of the affiliated society. The schedule required six dishes, distinct, each of cooking Apples, dessert Apples and dessert Pears, six fruits to each dish. Six societies competed, and the judges made the awards as follow:—1st, THE EAST ANGLIAN HORTICULTURAL CLUB (Mr. W. L. Wallis, 12, Royal Arcade, Norwich), for an unusually fine collection, of which the only defect was the over-large size of some of the dessert Apples.

only once in three years by any one society, and as the EAST ANGLIAN CLUB were the winners last year, the challenge cup passes to the IPSWICH ASSOCIATION, and a special silver cup was awarded with the 1st prize to the EAST ANGLIAN CLUB. The other exhibits were contributed by the Isle of Wight Horticultural Association, the Addlestone, Chertsey and Ottershaw Gardeners' Mutual Improvement Association, the Croydon and District Horticultural Mutual Improvement Society and the Colchester and District Gardeners' Association. The Colchester Society's exhibit (Mr. W. H. Tanner, 45, Earl Street, Colchester) included very fine fruits, and was highly commended by the judges.

DIVISION V.

SPECIAL DISTRICT COUNTY CLASSES.

FOR THE PURPOSES OF this division, the country is divided into 11 groups of counties, each group comprising a number of neighbouring units, in which the climatic conditions are approximately uniform. All fruit must have been grown entirely in the open. The classes for Apples required six dishes of distinct varieties, four cooking and two dessert, and the Pears six dishes of distinct varieties. On the whole, the quality and colour of the fruits were excellent. The home counties and the eastern and southern counties were well represented, but from the west and north and Scotland and Ireland the competition was weak.

KENT.—*Apples*: The importance of Kent as a fruit-growing centre has won for it a separate class. There were, however, only three entries, and the 1st prize was awarded to W. E. S. ERLE DRAX, Esq., Wye, Kent (gr. Mr. J. Bond), for finely-coloured specimens of Allington Pippin, Charles Ross, Peasgood's Nonesuch, Hambling Seedling, Lord Derby, and Mère de Ménage. H. G. KLEINWORT, Esq., Wierton Place, Maidstone (gr. Mr. B. J. Mercer), was a good 2nd, his collection including Cox's Orange Pippin and Allington Pippin as dessert varieties.

—*Pears*.—The only exhibit staged was from Mr. ERLE DRAX, who was awarded the 1st prize. His fruits were Beurré Superfin, Beurré Diel, Beurré Alexandre Lucas, Doyenné du Comice, Duchess d'Angoulême, and Pitmaston Duchess.

SURREY, SUSSEX, HAMPSHIRE, DORSET, SOMERSET, DEVON, and CORNWALL.—*Apples*: There were six entries, but there was little difficulty in selecting the magnificent fruits from the Duke of RICHMOND and Gordon's Goodwood (gr. Mr. E. Brock), as the best. Cox's Orange Pippin and Allington Pippin were the dessert varieties, and Lane's Prince Albert, Lord Derby, Royal Jubilee, and Gasconne's Scarlet Seedling the culinary sorts. Mr. JOHN COPP, Ferndale, Teignmouth, was a good 2nd, his collection including some splendid fruits of Charles Ross variety.

—*Pears*.—There were only two collections staged. F. J. B. W. DIGBY, Esq., Sherborne Castle (gr. Mr. T. Turton), was placed 1st with Beurré Alexandre Lucas, Beurré Baltet Père, Charles Ernest, Conseiller de la Cour, Doyenné du Comice, and Durodeau. 2nd, CHAS. H. COMBE, Esq., Cobham Park, Surrey (gr. Mr. A. Tidy).

WILTS, GLOUCESTER, OXFORD, BUCKS, BERKS, BEDS, HERTS, and MIDDLESEX.—*Apples*: Four collections were staged, and the fruits from the Earl of SUFFOLK, Charlton Park, Malmesbury, Wilts. (gr. Mr. T. J. Finch), which were placed 1st, were particularly clean and brightly coloured. Rival and Cox's Orange Pippin were the dessert sorts chosen. Royal Jubilee, Bramley's Seedling, Mère de Ménage, and Peasgood's Nonesuch the culinary varieties. 2nd, J. B. FORTESCUE, Esq., Dropmore, Maidenhead (gr. Mr. C. Page).

—*Pears*.—There were also four collections of Pears, the 1st prize being won by Lord HILLINGTON, Hillington House, Uxbridge (gr. Mr. A. R. Allan), with Doyenné du Comice, Durodeau, Emile d'Heyst, Marie Louise, Pitmaston Duchess, and Thompson. 2nd, Viscount ELDON, Wrotham Park, Barnet (gr. Mr. H. Markham).

ESSEX, SUFFOLK, NORFOLK, CAMBRIDGE, HUNTS, and RUTLAND.—*Apples*: Of the three collections shown, Col. PETRE's, Westwick House, Norwich (gr. Mr. G. Davison), were awarded the 1st prize, and the Hon. W. LUTHER'S, Campsea Ash, Suffolk (gr. Mr. A. Andrews), the 2nd prize. Col. PETRE's varieties were Ribston and Allington Pippins, Bramley's Seedling, Bismarck, Mère de Ménage, and Peasgood's Nonesuch.

—*Pears*.—Col. PETRE, showing *Conference*, Doyenné du Comice, Durodeau, Emile d'Heyst, Marguerite Marillat, and Pitmaston Duchess, won the 1st prize against three other competitors; 2nd, C. H. BERNERS, Esq., Woolverstone Park, Ipswich (gr. Mr. W. Messenger).

LINCOLN, NORTHAMPTON, WARWICK, LEICESTER, NOTTS, DERBY, STAFFS, SHROPSHIRE, and CHESHIRE.—*Apples*: Four exhibitors showed in this class. The 1st prize was awarded to the Duke of PORTLAND, Welbeck Abbey, Worksop (gr. Mr. J. Gibson), who showed Cox's Orange Pippin and Ribston Pippin, Lord Derby, Gas-

coyne's Scarlet Seedling, Peasgood's Nonesuch, and Tyler's Kernel. F. BIBBY, Esq., Hardwicke, Shrewsbury, followed closely.

—*Pears*.—There were only two collections of Pears, and the awards were: 1st, Duke of PORTLAND, and 2nd, Mr. F. BIBBY. The varieties from Welbeck were Charles Ernest, Beurré Diel, Doyenné du Comice, Emile d'Heyst, Marie Benoist and Pitmaston Duchess.

WORCESTER, HEREFORD, MONMOUTH, GLAMORGAN, CARMARTHEN and PEMBROKE.—*Apples*: Only one collection of Apples was shown from this group of counties, and there were no Pears. The Apples, James Grieve, Cox's Orange Pippin, Bismarck, Bramley's Seedling, Lord Derby, and Newton Wonder, were from F. P. NORBURY, Esq., Malvern, who was awarded the 1st prize.

OTHER COUNTIES OF WALES.—The entries in this section were again weak, only one collection of Apples and Pears being staged, both from Col. CORNWALLIS WEST, Ruthin (gr. Mr. H. Forder), who was awarded the 1st prize in each class. None of the varieties was labelled.

THE SIX NORTHERN COUNTIES OF ENGLAND AND THE ISLE OF MAN.—J. BRENNAND, Esq., Baldersley Park, Thirsk (gr. Mr. J. E. Hathaway), was the only exhibitor, and was awarded the 1st prizes for both Apples and Pears. *Apples*, which were not very well finished, were Rival, King of Tompkins County, Bismarck, Mère de Ménage, Lord Derby, and Bramley's Seedling. *Pears* included Beurré Diel, Beurré Hardy, Durodeau, Marechal de la Cour, Pitmaston Duchess and Souvenir du Congrès.

SCOTTISH COUNTIES.—The Apples from Col. GORDON, Castle Douglas (gr. Mr. J. Duff), formed the only exhibit from Scotland, and were awarded the 1st prize. The varieties were Allington Pippin, King of the Pippins, Warner's King, The Queen, Cox's Pomona and Peasgood's Nonesuch.

IRISH COUNTIES.—One collection of Apples was the only entry. It was shown by the Earl of BESSBOROUGH, Piltown (gr. Mr. T. E. Tomalin), who was awarded the 1st prize, having Cox's Orange Pippin, American Mother, Bismarck, Peasgood's Nonesuch, Loddington Seedling, and Lord Derby.

There was no entry from the CHANNEL ISLANDS, which constituted the 11th county division.

DIVISION VI.

SINGLE DISH CLASSES.

DESSERT APPLES.

There were 27 classes for dessert Apples, and in every case, whether there were 2 or 30 dishes in a class, two prizes only were awarded.

Allington Pippin: This variety was shown by 23 exhibitors, and, generally, the fruits were handsome and true to form. The best dish was shown by the Earl of DEVON, Powderham Castle (gr. Mr. T. H. Bolton), Lord HOWARD DE WALDEN, Saffron Walden (gr. Mr. J. Vert), being placed 2nd.—*Adams's Pearmain*: This conical Apple was shown splendidly by all the nine exhibitors, and made an excellent class. EARL STANHOPE, Sevenoaks (gr. Mr. J. C. Sutton), won the 1st prize, and W. E. S. ERLE DRAX, Esq., Wye, Kent (gr. Mr. J. Bond), was 2nd.—*American Mother*: There were 12 dishes of this variety, and the fruits generally were richly coloured. Mr. DRAX was placed 1st, and Mr. A. BASILE, Weybridge, 2nd.—*Belle de Boskoop*: This thirdate variety brought but four dishes, as it is little grown. Mr. BASILE was placed 1st with rather large samples, and the Earl of LYTON, Knebworth (gr. Mr. H. Brotherton), 2nd.—*Ben's Red*: Only two dishes were staged, and both were inferior. The best was shown by Mr. R. LAMBERD, Aylesford; 2nd, the Rev. H. A. BULL, Westgate-on-Sea.—*Blenheim Pippin*: This popular variety was represented by no fewer than 28 dishes, the fruits varying greatly in size, shape, and colour. Mr. C. O. WALTER, Wantage, was well 1st, having medium-sized fruits; 2nd, EARL STANHOPE.—*Charles Ross*: This comparatively new variety was seen in nine dishes, all the fruits being well coloured and clean. The Rev. H. A. BULL was awarded the 1st prize, and Mr. BASILE the 2nd prize.—*Christmas Pearmain*: This valuable late variety was shown by seven exhibitors, the best dish being staged by H. C.

KLEINWORT, Esq., Maidstone (gr. Mr. B. J. Mercer); 2nd, Mr. J. VERT, with very russety fruits.—*Claygate Pearmain*: Eleven entries in this class, though several staged the wrong variety. It was appropriate that the 1st prize fruits came from Lord FOLEY's garden at Ruxley Lodge, Claygate (gr. Mr. H. C. Gardiner), where the Apple originated; 2nd, Mr. C. O. WALTER.—*Coronation*: This new variety was shown in three dishes. Mr. C. COPP, Sittingbourne, had handsome but rather large fruits, and was awarded the 1st prize; 2nd, Mr. DRAX.—*Cox's Orange Pippin*: No fewer than 31 exhibitors competed, many of the samples being of great excellence, and meriting many more prizes. The Rev. G. H. ENGLEHEART, Dinton, Salisbury, was well 1st with very handsome, even, and good fruits, of a medium size; 2nd, the Hon. Col. HAROLD, Ganton Park (gr. Mr. W. Allan).

—*Duke of Devonshire*: Colonel PERRE, Norwich (gr. Mr. G. Davison), had the best dishes amongst seven; 2nd, Mr. W. A. VOSS, Rayleigh, Essex.—*Egremont Russet*: There were nine dishes of this sort, the best being shown by Mr. DRAX, Mr. BOLTON being 2nd.—*Houblon*: The better of two dishes was shown by J. BRENNAND, Esq., Baldersley Park, Thirsk (gr. Mr. J. E. Hathaway); 2nd, J. B. FORTESCUE, Esq. (gr. Mr. C. Page).—*Jas. Grieve*: The best of seven dishes was shown by Mr. F. P. NORBURY, Malvern; Mr. R. LAMBERD, Aylesford, followed closely.—*King of Tompkins County*: The Duke of RICHMOND, Goodwood (gr. Mr. Brock), had superb samples, and was awarded the 1st prize; 2nd, C. A. COOMBE, Esq., Cobham Park, Surrey (gr. Mr. A. Tidy).—*Lord Hindlip*: Only three dishes of this variety were staged, Mr. R. M. WRITING, Hereford, having very good but mottled specimens; 2nd, Mr. DRAX.—*Old Margil*: There were five somewhat inferior dishes, Mr. C. O. WALTER being awarded the 1st prize, and Mrs. O. E. GOLDSMID, Tonbridge, the 2nd prize.—*Ribston Pippin*: There were 18 dishes, and they formed an excellent collection of choice fruits. The best were shown by Mr. H. EDOUARD, Norfolk; 2nd, Col. PETRE.—*Rival*: Of nine dishes, very richly-coloured fruits shown by Mr. A. BASILE were well 1st; 2nd, Lord HILLINGTON (gr. Mr. W. Allan).—*Ross Nonpareil*: Only one dish represented this little-known Apple, the exhibitor being Mr. LAMBERD, of Aylesford.—*St. Edmund's Pippin*: F. J. B. W. DIGBY, Esq., Sherborne Castle, Dorset (gr. Mr. Turton), excelled with this variety, Mr. J. COPP being placed 2nd.—*Wentley*: The best of eight dishes was shown by Mr. A. BASILE; 2nd, Mr. J. VIVIAN, Cornwall.—*William Crump*: The better of two dishes was shown by Lord LYTON; 2nd EARL BEAUCHAMP (gr. Mr. W. Crump).—In the class for any other early variety of dessert Apples, there were 24 exhibits, and King of the Pippins was selected, after tasting, as being the best. The exhibitor was E. MOCATTA, Esq., Addlestone (gr. Mr. T. Stevenson); Autumn Pearmain, from Mr. J. COPP, was 2nd; and King of the Pippins was awarded the 3rd and 4th prizes.—In a similar class for late varieties there were 32 dishes. The 1st prize was awarded to a beautiful dish of Fearn's Pippin, shown by the Hon. W. LUTHER, Campsea Ash (gr. Mr. A. Andrews); 2nd, *Cornish Aromatic*, from Mr. TURTON; 3rd, Winter Ribston (very much resembling Blenheim Pippin), shown by C. H. BERNERS, Esq.

CULINARY APPLES.

There were 30 classes in this section. *Annie Elisabeth*: H. G. KLEINWORT, Esq., Maidstone, had the best of 15 dishes, Mr. T. TURTON being placed 2nd.—*Beauty of Kent*: Seven dishes were shown in this class, Sir JEREMIAH COLMAN, Gatton Park, Reigate (gr. Mr. J. Collier), showing the best, Mr. C. PAGE being placed 2nd.—*Bismarck*: There were 13 dishes of this variety, Mr. J. VIVIAN, Cornwall, was awarded the 1st prize, and the Hon. W. LUTHER 2nd.—*Bramley's Seedling*: The fruits were of great size and very clean. Mr. J. VIVIAN was placed 1st of 17 dishes with grand fruits, Mr. A. BASILE being 2nd.—Only four dishes of *Byford Wonder* were shown. Mr. J. LEE, Higher Bebbington, was 1st, and Mr. J. COPP 2nd.—*Dumelow's Seedling* (*Wellington*) was shown in 11 dishes. Mr. C. PAGE and Mr. C. O. WALTER won the prizes in this order.—Seven dishes of *Ecklinville Seedling*, much speckled, were shown. 1st, Mr. DRAX; 2nd, Mr. STEVENSON.—*Edward VII.*: The best

of three dishes was shown by Mr. WHITING; 2nd, Mr. J. COPP, *Empire Abundant*: There were eight capital exhibits of this variety, Mr. J. VIVIAN having the best fruits; 2nd, Earl of SUFFOLK, Malmesbury (gr. Mr. Finch).—There were also eight dishes of the variety *Gascogne's Scarlet Seedling*, Colonel PETRE and Mr. DRAX taking the 1st and 2nd prizes respectively.—*Golden Noble* was shown in nine dishes, Mr. TURTON having the best specimens in yellow, clean fruits; 2nd, Mr. J. COPP.—*Grenadier*: The best of seven dishes was shown by Mr. J. VIVIAN, Mr. DRAX following.—*Hambling's Seedling*: 1st, Mr. T. E. TOMALIN; 2nd, Mr. DRAX.—*Lady Henniker*: Mr. A. BASILE had the best among 14 dishes; a new competitor, Sir G. HOWELL, Dunster (gr. Mr. Little), was placed 2nd.—*Lanc's Prince Albert*: Mr. STEVENSON was well 1st for this sterling variety, and Col. PETRE (gr. Mr. Davison) was a good 2nd.—*Lord Derby*: Eleven dishes were shown, although the samples were not equal to those of some previous years. Mr. B. J. BIBBY was placed 1st, and Mr. J. VIVIAN 2nd.—*Mr. de Mungo*: Fruits of this variety were of large size and rich colour. Mr. J. VIVIAN was 1st of eight exhibitors, and Mr. H. MARKHAM, Wrotham Park Gardens, 2nd.—*Newton Wonder*: No fewer than 18 dishes represented this fine late variety. The Hon. W. LOWTHER was 1st, and Mr. A. BASILE 2nd.—*Norfolk Beauty*: Only four lots were staged, Lord SUFFIELD, Gunton Park, Norfolk, and the Hon. W. LOWTHER, Suffolk, being awarded the prizes in this order.—*Peargood's Nonesuch*: The Hon. W. LOWTHER had the best dish of six, and Mr. J. VIVIAN the 2nd best.—*Potts's Seedling*: This variety was shown in two lots, the prizes being won by (1st) Mr. F. W. PLATT, Highgate, and (2nd) Mr. T. TURTON.—*Royal Jubilee*: Some very large fruits of this variety were shown. Mr. F. BIBBY, Shrewsbury, was placed 1st, and Colonel PETRE 2nd.—*Stirling Castle*: Mr. J. COPP excelled with this variety, Mr. BOLTON winning the 2nd prize.—*The Queen*: Of eight exhibitors, Mr. DRAX was placed 1st, and Mr. J. VIVIAN 2nd.—*Tower of Glamis*: Seven dishes were staged, the finest by the Earl of Bessborough (gr. Mr. Tomalin), Mr. TURTON taking the 2nd place.—*Warner's King*: This variety was seen in indifferent condition, many fruits being speckled. The Hon. W. LOWTHER won the 1st, and Mr. T. STEVENSON the 2nd prizes.—*Any other variety*: Twenty-four dishes were staged in this class, Clark's Seedling, a little-known Apple, shown by W. B. M. BOND, Esq., Chichester (gr. Mr. A. Gooding), being awarded the 1st prize.

PEARS.

Beurré Alexandre Lucas: There were dishes of fine, even-sized fruits of this variety; the 1st prize was won by A. BASILE, Esq., Weybridge; 2nd, F. J. DIGBY, Esq., Sherborne Castle.—*Beurré d'Amanlis*: The only dish shown of this variety was overripe.—*Beurré d'Anjou*: 1st, C. H. COMBE, Esq., Cobham Park; 2nd, J. CHARLESWORTH, Esq., Nutfield Court, Surrey.—*Beurré Bos*: A. BASILE, Esq., was placed 1st; 2nd, F. BIBBY, Esq., Hardwicke, Shrewsbury.—*Beurré Dumont*: A. BASILE, Esq., who was the only exhibitor, showed a fine dish of this variety.—*Beurré Hardy*: 1st, Lord HILLINGDON; 2nd, A. BASILE, Esq.—*Beurré Superfin*: The competition was good, but unfortunately no dishes were overripe. The 1st prize was awarded to A. BASILE, Esq.; 2nd, Lord HILLINGDON.—*Blakely*: Col. HARBORD was the only competitor in this class.—*Charles Ernest*: 1st, A. BASILE, Esq., with exceedingly fine Pears; 2nd, F. J. DIGBY, Esq.—*Comte de Lamy*: The four competitors in this class staged very good fruits. The 1st prize was awarded to J. T. CHARLESWORTH, Esq.; 2nd, Lord HILLINGDON.—*Conference*: There were seven competitors and the leading dishes were excellent. 1st, Col. PETRE, Norwich; 2nd, Mrs. BANKS, Wimborne.—*Directeur Hardy*: The 1st prize was won by C. H. BERNERS, Esq., and the 2nd by F. BIBBY, Esq., both competitors having fine fruits.—*Duchesse du Comice*: Most of the seven competitors in this class staged good typical fruits. The 1st prize was awarded to Col. PETRE; 2nd, F. J. DIGBY, Esq.—*Durondeau*: This popular Pear was well shown. There were nine exhibits. The winner of the 1st prize was Col. PETRE; 2nd, Col. HARBORD.—*Emile*

d'Heyst: The eight competitors showed very variable fruits, but they were mostly of good shape. The Duke of NEWCASTLE excelled in this class; 2nd, Col. PETRE.—*Fondante d'Automne*: There were three competitors, Col. HARBORD being placed 1st, and Lord HILLINGDON 2nd.—*Fondante Thiriot*: The two competitors, Lord HILLINGDON (1st) and J. B. FORTESCUE, Esq., Dropmore (2nd), deservedly received the prizes.—*Glou Morceau*: This class brought six competitors, which resulted in Col. HARBORD receiving 1st prize; 2nd, A. BASILE, Esq.—*Josephine de Malines*: There were 10 dishes of this Pear, this being the best-contested class in the division. The 1st prize was awarded to Col. HARBORD; 2nd, F. DIGBY, Esq.—*Le Brun*: The only com-

petitor, 2nd, Col. PETRE.—*Olivier de Serres*: 1st, Lord HILLINGDON; 2nd, F. BIBBY, Esq.—*Pitmaston Duchess*: Of the 10 dishes of this variety several contained very large fruits. 1st, R. LAMBIER, Esq., Aylesford; 2nd, Hon. W. LOWTHER, Suffolk.—*President Barabé*: Col. HARBORD was successful in this class; 2nd, Lord HILLINGDON.—*Souvenir du Congrès*: There were six competitors in this class, J. B. FORTESCUE, Esq., having the best dish; 2nd, J. EDMONDS, Esq.—*Thompson*: The 1st prize was won by J. B. FORTESCUE, Esq.; 2nd, Col. HARBORD.—*Triomphe de Vienne*: W. ERLE DRAX, Esq., excelled in this class; 2nd, Lord HILLINGDON. Three exhibitors in this class staged very fine Pears.—*Winter Nelis*: Of the nine dishes, the



[Photograph by John Gregory.]

FIG. 124.—CYRIPEDIUM ROYAL GEORGE.

Received R.H.S. First-class Certificate on Tuesday last (see p. 282).

petitor, A. BASILE, Esq., staged very fine Pears.—*Le Lectier*: There were six competitors, most of whom staged very good fruits, Lord HOWARD DE WALDEN receiving the 1st prize; 2nd, C. H. COMBE, Esq.—*Louise Bonne of Jersey*: Of eight competitors, the most successful was W. ERLE DRAX, Esq.; Wye; 2nd, Col. HARBORD.—*Marie Benoist*: Two competitors only in this class staged very fine Pears. The 1st prize was won by C. H. BERNERS, Esq.; 2nd, A. BASILE, Esq.—*Marie Louise*: Col. HARBORD and Lady TATE were the winners of the 1st and 2nd prizes respectively. The six collections staged showed great diversity of form.—*Nouvelle Fulvie*: There were six competitors in this class. 1st, Mrs. BANKS;

best was shown by Lord FOLEY, Claygate; 2nd, Col. HARBORD.—*Eight fruits of any early variety not included above*: 1st, B. E. RICHARDSON, Esq., Stanstead Abbots, who staged very good fruits of Mme. Treve; 2nd, F. W. BIRKINSHAW, Esq., Sandy, with Princess; 3rd, F. DIGBY, Esq., who showed the highly-perfumed Pear Seckle.—*Eight fruits of any late variety not named above*: 1st, A. BASILE, Esq., with very big fruits of Roosevelt; 2nd, Lord FOLEY, who showed Beurré Bachelier; 3rd, Lord HOWARD DE WALDEN, whose Beurré Diel were very fine fruits. Col. PETRE showed, not for competition, immense fruits of General Todleben, Catillac, and Uvedale's St. Germain.

Floral Committee.

OCTOBER 10.
AWARDS OF MERIT.

Dahlia Breantwood Yellow.—A dwarf decorative variety of the colour indicated by the name. It is recommended for planting in beds and borders on account of its freedom of flowering and dwarf habit, the growths being only from 2½ to 3 feet high. Shown by J. T. West, Brentwood.

Chrysanthemum Cranford Yellow.—A market or decorative variety of buttercup-yellow colour. Shown by Mr. Roots, Cranford.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Harry J. Veitch, Walter Cobb, J. Charlesworth, A. A. McBean, W. P. Bound, T. Armstrong, J. Cypher, W. H. Hatcher, H. G. Alexander, J. E. Shill, F. J. Hanbury, Gurney Wilson, W. Bolton, J. S. Moss, and C. H. Lucas.

The show of Orchids was confined to plants submitted to the Committee, and several very interesting novelties were staged, the two fine *Cypripedium*s which secured First-class Certificates well opening the coming *Cypripedium* season.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cypripedium Lucifer (Noble "Westonbirt" variety × *Euraydes*), from Lieut.-col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander). A superb flower of fine shape and substance and attractive colour. In the general aspect of the flower *C. Niobe* predominates, but it is much larger and broader in all its parts. The upper sepal is broad and flat, clear white, heavily tinged and veined with rose-purple, the central line being the darker; the base is emerald green with a few blackish spots. Petals broad, ciliate, purplish-brown on a primrose-yellow ground, a few dark spots being displayed at the base. The lip is well rounded and tinged with mahogany red.

Cypripedium Royal George (*Harrisianum superbum* × *Minos Youngii*), from Messrs. ARMSTRONG & BROWN, Tunbridge Wells. One of the finest of large-flowered *Cypripedium*s, in which both the parents can be well traced. The dorsal sepal shows much of *C. Minos Youngii*. The petals are broad and coloured like *C. Beckmannii*. Dorsal sepal broad and flat, white with a small green base, from which extends dotted lines of purple with a rose-purple flush between. Petals yellowish-green, the upper halves purplish-brown. Face of the lip tinged with purplish-brown. A very remarkable hybrid, notwithstanding the great variety in this large genus. The stock goes to the collection of Francis Wellesley, Esq., Westfield, Woking.

Odontodia Euterpe (*Coehlioda Noeliana* × *Odontoglossum Uro-Skinneri*), from Messrs. CHARLESWORTH & CO., Haywards Heath. A neat and effective new hybrid of bright colour. Sepals and petals orange-scarlet. Lip rounded in front, closely mottled with rosy-mauve. A promising hybrid for early-winter flowering.

OTHER EXHIBITS.

E. H. DAVIDSON, Esq., Borlases, Twyford (gr. Mr. F. Cooper), showed *Lælio-Cattleya Davidsoni* (L. C. Bella × *C. labiata*), a showy hybrid with bluish-rose sepals and petals, and ruby-purple lip with a yellowish disc.

MESSRS. ARMSTRONG & BROWN, Tunbridge Wells, showed *Cypripedium Thymone* (*Prewettii* × *Fairrieanum*), *C. Dallas* (*Curtisii* × *Fairrieanum*), and *C. Thisbe* (*Beechense* × *Fairrieanum*).

MESSRS. HASSALL & CO., Southgate, showed *Cattleya Hassallii* (*labiata* × *Empress Frederici*), a showy flower of fine shape, and *C. Parthenia* Prince of Wales.

MESSRS. CHARLESWORTH & CO., Haywards Heath, showed *Odontoglossum grande aureum* (*Charlesworthi* variety, the largest and best of the yellow forms of *O. grande*; the handsome and rare *Stanhopea platyceras*, and the true *Gongora maculata* of Lindley.

MESSRS. MANSELL & HATCHER, Rawdon, Yorks., showed *Miltonia candida superba*, a remarkably beautiful form of the grandiflora section, with an open white lip with purple blotch; and a spike of a very handsome, white-petalled form of

Cattleya aurea, nearly identical with that known as *Countess of Derby*.

J. BRIDSON SEATLE, Esq., Fairfield, Richmond Road, Putney (gr. Mr. T. V. Paice), sent a very fine specimen of *Miltonia Karwinskii*.

Mr. E. V. LOW, Vale Bridge, Haywards Heath, sent *Cattleya Thurgoodiana* "Wivelsfield" variety, of fine colour, and *C. Norba* (parentage unknown), in which *C. grandulosa* was evident. The sepals and petals were pale buff with a rose shade; the lip rose-purple with a white base, and chrome-yellow disc. Also *C. labiata Italia*, white with a pink tinge on the lip.

MESSRS. J. & A. A. McBEAN, Cooksbridge, showed a very fine specimen of *Miltonia vexillaria Leopoldii* with very dark colour in the mask of the lip, the rest of the flower being bright pink.

Fruit and Vegetable Committee.

AWARD OF MERIT.

Apple Ellison Orange.—A medium-sized fruit, with yellowish exterior of excellent flavour. It ripens in October. The parentage is stated to be Cox's Orange Pippin crossed with *Calville Blanc*. It was raised by the Rev. C. C. Ellison, Bracebridge, Lincoln, and shown by Mr. W. CRUMP, Madresfield Court Gardens, Malvern. Mr. H. Markham also grows the variety, and holds it in high esteem.

UNION OF HORTICULTURAL MUTUAL IMPROVEMENT SOCIETIES.

OCTOBER 11.—Representatives of the horticultural debating societies affiliated with the R.H.S. held their annual conference on the above date in the Lecture Room of the R.H.S. Hall, Vincent Square, Westminster. Amongst the subjects dealt with at the meeting were: (1) A paper on "Errors in Flower Show Schedules," by the secretary, the Rev. W. Wilks, M.A. (2) A letter from the Brewood Horticultural Society concerning queen wasps. (3) A discussion on what should "Union" mean, introduced by Mr. Mark Webster, of the Beckenham Horticultural Society, and Mr. Gill, of the Wimbledon Society. (4) The formation of country flower shows, introduced by Mr. Cawte, of the Highgate Society.

ANSWERS TO CORRESPONDENTS.

APPLES SPECKED: *L. L.* The Apples are attacked by Bitter-pit. This is caused by climatic conditions. There is no cure known.

BEGONIAS UNHEALTHY: *A. B. C. and F. A. D.* There is no disease present in the Begonias sent, but the damping of the foliage and shrivelling of Begonia Gloire de Lorraine are very common occurrences. They are due to an excessively moist and close atmosphere. Ventilate the house freely, and keep the plants and their surroundings drier, standing the pots well apart.

CUCUMBERS DISEASED: *S. S.* The injury to your Cucumber leaves is caused by *Cercospora melonis*. If any fresh planting is contemplated spray the leaves with liver of sulphur at an early stage, and repeat the sprayings on seedling plants next season.

CYCLAMEN LEAVES: *G. R.* The leaves of your Cyclamen plants are badly blistered by mites. Use an insecticide, and sponge the leaves with a soft soapy water.

GRAPES SPOTTED: *X. Y. Z.* There is no disease present in your Grapes, the rust or spotting being due to the presence of moisture on the fruit late in the day. Ventilate the house earlier in the morning so that the moisture may evaporate.

NAMES OF FRUITS: *W. J. B.* 1, Louise Bonne of Jersey; 2, decayed; 3, Ribston Pippin; 4, French Crab, Plum Reine, Claude de Bavay.

W. G. W. 1, Mère de Ménage; 2, Beurré Hardy; 3, Marie Louise; 4, Madame Treve; 5, Beurré Diel; 6, Dutch Codlin.—*Chilton*. *Heremote* d'Autonne. *Calville*. *Rouge*. *Reder*. *Sandringham*. *W. Z.* 1, Golden Spire; 2, Dumelow's Seedling; 3, probably a local variety; 4, Warner's King; 5, not recognised.—*T. M. N.* 1, Hambleton Deux Ans; 2, Bismarck; 3, Radford Beauty; 4, Melon Apple; 5, Cox's Pomona.—*J. J.* 1, Rymer;

2, Directeur Hardy.—*F. Herbert*. 1, Hanwell Souring; 2, Kentish Deux Ans; 3, Prince Albert; 4, Melon Apple; 5, Newton Wonder; 6, Sheep's Nose; 7, Norfolk Beeding.—*W. H. Wells*. 1, Brabant Bellefleur; 2, Calville St. Sauvier.—*W. H. Mabbott's* *P. Canina*.—*L. Leake*. 2, Blenheim Pippin; 3, Mabbott's Pearmain; 4, Duchesse of Oldenburg; 5, a poor specimen, cannot be named.—*A. B.* 1, Doyenné Boussoch (not a first-rate variety), Brown Beurré. There are many superior to these for including in a collection of six varieties.—*W. C.* 1, Court-pendu-plât; 2, Requette Van Mons; 3, King of the Pippins.—*A. G.* Stone Pippin.—*J. Mac D.* 1, Probably a local variety; 2, Wyken Pippin; 3, Small's Admirable; 4, Golden Spire; 5, Yorkshire Greening; 6, King of the Pippins.—*W. Miles*. 1, Braddick's Nonpareil; 2, Beauty of Kent; 3, Lady Henniker; 4, Ross' Nonpareil; 5, Dumelow's Seedling (Wellington); 6, Broad End.—*J. Lawrence*. 1, Round Winter Nonesuch; 2, Cox's Orange Pippin.—*Chilton*. 1, B, Braddick's Nonpareil; 1, M, Duke of Devonshire.—*O. W. Hunt*. 13 and 14, Old Hawthornden; 15, Duchesse's Favourite (Duchess of Gloucester); 16, Prince Albert; 37, Newton Wonder; 12, 20, 22 are all too small to name.—*A. T.* 1, Josephine de Malines; 2, Thompson's (a very fine fruit); 3, Marie Louise; 4, King of the Pippins; 5, Tom Putt.—*G. B.* Large Apple, Ribston Pippin; 2, Kerry Pippin; Pear, Louise Bonne of Jersey. *Blackdown*. 1, King Edward; 2, Beurré Diel; 3, Fertility; 4, Brockworth Park; 5, Bergamotte d'Autonne; 6, Alfriston; 7, Scarlet Nonpareil; 8, Yorkshire Beauty.—*E. H. S.* 1, Lord Derby; 2, Pile Russet; 3, Sturmer Pippin; 4, Requette du Caux; 5, Mère de Ménage; 6, Fearn's Pippin.—*J. G. Sandwich*. 1, Belle de Pontoise; 2, Emperor Alexander; 3, Blenheim Pippin; 4 and 7, Bramley's Seedling; 5, Ribston Pippin; 6, King of the Pippins.—*T. W.* 1, Pitminster Duchess; 2, Uvedale's St. Germain; 3, British Queen, 4, Chaumontel; 5, Easter Beurré; 6, Beurré Bosc.—*S. Horton*. 1, Lady Sudeley; 2, Wealthy.—*Buchlyvie*. 1, Warner's King; 2, Beauty of Kent; 3 and 4, Stirling Castle; 5, Waltham Abbey Seedling; 6, The Queen.

NAMES OF PLANTS: *T. D. H.* 1, *Lupinus arboreus*; 2, *Salvia Grahamii*; 3, *Linaria repens alba*; 4, *Helianthemum vulgare var. cupreum*; 5, *Cerastostigma plumbaginoides*; 6, *Tamarix gallica*.—*H. W. S.* *Escallonia montevidiensis*.—*T.* *Ulmus montana var. crispus* (*U. urticifolia*).—*R. Sumner*. 1, *Ligustrum japonicum coriaceum*; 2, *Arbutus Unedo*; 3, *Thuya plicata var. zebрина*; 4, *Cupressus Lawsoniana lutea*; 5, *C. l. erecta viridis*; 6, *C. pisifera squarrosa*; 7, *C. p. plumosa argentea*; 8, *Juniperus communis* variety; 9, *Biota orientalis* variety; 10, *Cupressus Lawsoniana* variety; 12, *C. Lawsoniana*; 13, *C. pisifera plumosa*; 14, *C. pisifera*.—*P. T.* 1, *Vanda alpina*; 2, *Oncidium oblongatum*; 3, *Stelis ophroglossoides*; 4, *Pleurothallis lateritea*.—*T. H.* 1, *Gongora quinquevallis*; 2, *Catasetum maculatum*; 3, *Dendrobium Phalaenopsis*.—*Barncluth*. *Ilex Aquifolium var. feroc.*

VINE BORDER: *W. R.* You do not read your *Chronicle* carefully. Directions for making a vine border were given in the issue for September 30, p. 250; the amount of lime-rubble and half-inch bones should be 1 cwt. each to every five loads of loam.

WORK ON GARDEN DESIGNING: *G. J.* There is no book dealing with the formation and designing of flower-gardens, except such as are out of print. Books on landscape gardening deal with the subject, and there is also a useful chapter in the Supplement to *Nicholson's Dictionary of Gardening*. A book on geometrical drawing may be obtained from any of the scholastic publishers.

Communications Received. P. C. F. H. M. S. H. M. C. L. J. W. T. R. A. B. C. M. F. L. G. P. E. Brothers. J. M. H. Chas. Cole. G. N. R. G. G. C. W. W. R. H. W. Barncluth. F. D. Dorset. G. W. H. M. B. J. C. Bristol-Anxious. W. H. W. D. & Co. A. Llandaf. J. C. T. J. Suberbar. M. B. P. T. D. E. M. F. C. D. Seaside. F. W. C. M. T. W. K. C. B. M. S. A. J. B. W. C. W. H. D. J. B. C. W. H. Rev. J. B. H. E. W. H. J. E. C. T. D. G. F. W. H. P. A. C. B. Miss M. L. B. J. P. W. A. D. R. T. G. W. C. Portobello. B. & Sons. T. H. V. L. F. G. H. Erlurt. F. B. W. B. H. G. H. Winchester. A. C. B. J. C. H. R. D. Thomas Stevenson.

Gardeners' Chronicle

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LONGFORD CASTLE.

(See Supplementary Illustration.)

THE Wiltshire seat of the Earls of Radnor is pleasantly situated on the bank of the Avon, about 3½ miles nearly south of the city of Salisbury. The way thither lies through a portion of the city, with its strangely-named streets, "Pennyfarthing Street," near the famous cathedral, records the daily rate of pay of the workers who assisted in erecting this wonderfully beautiful ecclesiastical edifice.

With the town at our back we drive over gently-undulating roads towards Longford Castle. Already the wooded hills, which distantly flank the highway, give promise of one of the great charms of Longford; that of broad, undulating parks, framed by belts of fine forest trees full of leafy splendour. The fields are burnt brown, but the woods, which are composed chiefly of Elm and Beech trees, look cool and green. Our first view of the castle was that depicted in the supplement. A castle without forbidding grimness is artistically blended with an Elizabethan style of architecture. The latter is held by some authorities to lack repose and dignity, but in this instance it is the Elizabethan portions which give repose and make the building so sugges-

tive of a home. The original castle at Longford was built over 300 years ago—a manor house had stood near the site for several centuries previously—with three towers in triangular form, each tower being named after one of the Persons of the Trinity. There were difficulties and expense with respect to the foundations, which were "sett soe neare the River, and upon soe many springs," that they had to be laid on piles and woodpacks. This was about the time of the Spanish Armada, and, in consequence, the work proceeded slowly for a while, but was expedited later. In 1765 the first Earl of Radnor was created, and he laid the foundations of the famous Longford Castle collection of pictures. The castle in its present form was the result of alterations commenced towards the close of the 18th century, and completed in 1874. The lower illustration in the supplement shows the formal flower garden which is immediately in front of the castle. As will be seen, this garden is in the form of a huge sunken panel, and is partly surrounded by clipped Yew hedges, with terrace walks beyond them. This garden, with its geometrically-shaped flower beds enclosed by banks of turf, is the brightest and best that it has been our fortune to see during the present season. There was plenty of gay colour, and, indeed, the position, backed by the grey walls of the castle, with the deep green of large trees at its other end, and the river flowing gently seawards, demands the colour which rioted gaily in the brilliant sunshine. The newest mode of summer bedding—largely that of big plants massed thickly together—does not find a place at Longford. Here the flower beds are too small for large plants of any kind to be effective, and so comparatively small plants are employed. They are disposed, however, with such taste and skill that there is none of the flatness which might have been anticipated. In such a garden as this, where all the many beds are under review at once, the arrangement of the colours becomes a matter for careful forethought, for any other than a trifling mistake remains in evidence throughout the entire season. In the Royal Parks of London many of the flower beds are replanted several times during the season, but even in such a large private establishment as that of Longford it is not possible to adopt such a practice. Whilst there is no striving after extravagant effects, the plants are harmoniously blended. The pink-flowered species are nicely graded on to the deeper reds, and away from the yellow and mauve shades; whilst the blues are separated from the bright colours by flowers of a yellow or terra-cotta shade. A catalogue of the plants which contributed towards this blaze of colour would serve no useful purpose. It is sufficient to remark that much of the brightness was obtained from such plants as a dwarf and floriferous strain of *Salvia splendens* and *Colchicum Verschoffeltii*, which unfortunately is not nearly so often seen in flower gardens as was the case 20 or more years ago. We do not know of any other summer bedding

plant which gives such a rich, velvety crimson colour, despite the contentions of the admirers of Begonias of many forms. Scarlet Pelargoniums are indispensable when prolonged bright colour is desired, and at Longford the fine variety Paul Crampel is grown, though tuberous Begonias also find a place for the sake of variety. The deeper-coloured Heliotropes are especial favourites of the Countess of Radnor, and bushy plants are largely planted in the beds. *Calceolaria simplex*, the best of the genus for late summer and autumn display, is also grown in quantity.

On leaving the gorgeous flower garden, the scene changes completely. Behind us lies the castle, its broad terrace walk and garden of flower beds marked out with precision and enclosed either by stone balustrading or clipped Yew hedges. Everything speaks of the art of man, the castle bears evidences of the taste of the architect and the skill of the builder, whilst the garden is a testimony—perhaps not so lasting, for another "Capability" Brown may come again and sweep it away, as happened to a previous formal garden here—to the art of the landscape gardener: and so we pass out through the gateway into the cool restfulness of woodland walks. We do not know the extent of this most delightful feature of Longford, but it gives the impression of limitlessness; no matter how long one saunters there would—it seems—still be lofty trees of Beech and Oak, with clean straight trunks, and ever and anon, in the subdued light, would appear little glades with an old summer-house at the end of one, or some unusually fine tree prominent in another. Here beneath the trees rest countless numbers of bulbs, waiting for their own particular spring-time, when they will stud the ground thickly with their flowers. Lady Radnor has taken this delightful phase of gardening under her own care, and has planted the most suitable kinds of all the spring flowers in great numbers: of Snowdrops alone there are seven miles.

A sharp turn to the right brings into view a very fine specimen of *Taxodium distichum*, 76 feet high, with a girth of 8 feet 8 inches at 5 feet up. A splendid pyramid of feathery branches, so well proportioned that its height, as determined by a dendrometer, astonished us. From this tree a well-kept lawn gently slopes to a brook which joins the Avon river in its placid journey southwards. On this lawn Mr. Tucker pointed out several "knees" of the *Taxodium*. This is a good instance of the formation of these woody swellings far from water. Such growths are common when the tree grows in moist or swampy ground, but they have not often been recorded as occurring on dry ground. Near by, there is a summer-house covered with *Hiawatha* and *Dundee Rambler* Roses. In the background there are two fine old Judas trees (*Cercis Siliquastrum*), which must be very beautiful when in flower. Beside the stream is a shady walk, where the pied wagtail flits from

boulder to boulder with quaint ceaseless motion of its tail, and where the speckled trout darts through the water like a ray of light. So great is the fascination of running water that we pause to lean on the railing of a rustic bridge, and note how on the right a huge Horse Chestnut overhangs the bank, its large leaves dipping into the stream; on the opposite bank there is a grass-grown slope, where numbers of Primroses have been planted, and we speculate as to their powers of withstanding the unaccustomed drought. A fine bush of the Carolina Allspice (*Calycanthus floridus*), which bears such pleasantly scented flowers of quaint brown colour, claims attention. We emerge from the wood into an extensive park with a rolling sweep of greensward, losing itself in broad belts of enormous trees. Here the ancestral Oaks, Elms, and Beeches are feathered to the ground. This uncommon feature is a tradition at Longford, and whilst the cattle are grazing herdsman are always in attendance to prevent any browsing on the leaves of the trees. On a level portion of a fine cricket ground has been made, and the young men practice and play matches in full view of the castle. A football ground is marked out alongside, so that the winter game may be indulged in. Nearer to the castle there is a lawn of magnificent proportions—lawn keeping is important work in these grounds, and, beside several small machines, a large motor lawnmower is in use—with many Roses planted alongside the broad gravel walk. On one side, the carriage drive is shut off by a closely-clipped Yew hedge, and parallel with the hedge is a long pergola made of Oak posts set on roughly-hewn stones hidden by Saxifraga hypnoides and similar lowly-growing plants. The pergola itself, which is sufficiently high to allow a tall person to walk beneath it in comfort, is well furnished with various climbers, Clematis, Ceanothus, Pyrus japonica, Honeysuckles, climbing Roses, Escallonia macrantha, the sweet-scented Lippia citriodora, and species of Vitis. *A. C. Bartlett.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

LÆLIO-CATTLEYA URSULA.

EUSTACE F. CLARK, Esq., Evershot, Dorchester, sends a flower of this brightly-coloured hybrid, first flowered by him in 1907. The hybrid is from a cross between *Lælia crispa* and *Lælio-Cattleya corbeilensis* (*C. Loddigesii* × *L. pumila*), made by him in 1898. The flower is as large as *L. crispa*, and somewhat similar to it in shape, but the sepals and petals are purplish-mauve, darker in the veining. The side lobes of the lip are white, tinged with purple, the front lobe, purplish-crimson, the base veined with orange. Although it is not massive, it is a very bright and attractive flower.

PLEUROTHALLIS HEMIRHODA, LINDL.

CONSIDERING that this very pretty species is enumerated in the extensive and interesting catalogue of the Schiller (Hamburg) collection (February, 1857), it is strange that but little has been heard of the plant in recent times, and that it is now only to be found in one or two collections. For a long time it has been producing its pretty white and purple flowers in the Orchid houses of Sir Frank Crisp, Friar Park, Henley-on-Thames (gr. Mr. Knowles), where the genus and its allies are well represented. It is of the section *Restrepioideae* of Lindley, and is identical with *Restrepia biflora*, Regel, *R. nuda*, Klotzsch, and *R. vittata*, Lindl. The flowers are solitary or in pairs, in shape and size approaching those of *Pleurothallis scapha* and *P. Birchenallii*, illustrated in the *Gardeners' Chronicle*, June 19, 1909, p. 331.

CIRRHOPE TALUM CAUDATUM.

THIS pretty and rare species has flowered well this season in the gardens of the Hon. N. Charles Rothschild, Ashton Wold, Oundle (gr. Mr. Wright). The umbels, each about 2 inches across, bear many flowers, the long, narrow, lateral sepals being gracefully curved outwards. The colour is cream-white. Lindley described the species over 70 years ago from Wallich's specimen collected in Nepal as *Bulbophyllum caudatum*, a name which is sustained by most authorities, who consider that *Cirrhopetalum* is merely a section of *Bulbophyllum*. There is a charm about these



[Photograph by J. Edwards.]

FIG. 125.—YUCCA ELLACOMBEI IN MR. ELWES' GARDEN.

pretty and curious plants which command for them a more lasting interest than many of the showy species.

DENDROBIUM PHALENOPSIS.

THE fact that even minor departures from the normal form are constant in many Orchids is well demonstrated in a flower of a very fine form of *Dendrobium Phalenopsis* sent by Mr. H. Haddon, gardener to J. J. Neale, Esq., Lynwood, Penarth. Last year Mr. Haddon sent a flower from the same plant, a very striking feature in which was a raised, fringed, purple line down the middle of each petal. The flower sent this year from the same plant has the same peculiarity, although not so pronounced as in last year's specimen.

DENDROBIUM FORMOSUM GIGANTEUM.

THIS is one of the most handsome and satisfactory large-flowering Orchids in the collection of Leopold de Rothschild, Esq., Gunnersbury House, Acton, and the great success attained in its culture by Mr. Jas. Hudson is noteworthy, because it has been sustained for many years. Even seedling plants which came up on the imported specimens have been grown into strong-flowering plants. For some time past the plants have borne from two to three hundred pure white flowers, with the discs of the lip varying in tint from chrome yellow to rich orange colour, each flower being about 4 inches across.

YUCCA GLORIOSA VAR. ELLACOMBEI.

WE are indebted to Mr. Elwes for the opportunity of figuring this handsome *Yucca* (see fig. 125), a plant of which bloomed in his garden at Colesborne this summer. With the flowers Mr. Elwes sends the following particulars:—

"Though I have, through the kindness of Canon Ellacombe, had this plant in my garden for many years, I have never flowered it till this season, when, favoured by a continuous sunshine such as I have never known, it has, at the foot of a hot wall, produced a spike about 5 feet long, of which 3 feet at least are covered with flowers, now in the height of their beauty. The original plant was procured by Canon Ellacombe's father from Loddiges' nursery many years ago, and is described and figured in *Refugium Botanicum*, t. 317, as a species, probably from the Southern United States. In the *Kew Index* it is referred to as a synonym of *Yucca gloriosa*, of which Baker and Trelease afterwards made it a variety. Canon Ellacombe considers that it is a cross between *Y. recurva* and *Y. superba*, as it has the reflexed leaves of the former and the red-backed petals of the latter species. Whatever its origin may be, it surpasses in beauty any *Yucca* that I have seen, except perhaps *Yucca Whipplei*, which, so far as I know, has not yet flowered in this country, though both Mr. Goodman and myself brought it from South California as long ago as 1888."

THE ROSARY.

SOME ORANGE-YELLOW ROSES.

THE purpose of the notes which follow is a brief review of some of the orange-yellow Roses, with the object of considering some of the new Roses of this colour which seem worthy of notice. With two or three exceptions the novelties come to us from Continental hybridisers. I propose to confine myself to Roses of dwarf habit of growth, and shall therefore exclude varieties of a climbing or semi-climbing habit, like *Billard et Barré* and *Mme. Hector Leulliot*.

Mme. Ravary (H.T.), the first, and one of the best, of the group was brought out by Mons. Pernet Ducher, in 1899. Having a hardy constitution and short, sturdy growth, it makes an excellent bedding Rose, and is sufficiently free-flowering to give a fair succession of flowers throughout the summer and far into autumn. The flowers come a better colour in dull than in very hot weather, such as we have had this year, and, like all the Roses of this class, the buds are particularly beautiful. The flowers withstand a certain amount of rain, as they are not very full, and will also tolerate shading. Some amount of heat, however, seems necessary to the proper development of the blossoms, for the cold nights and rains of autumn appear to take away much of their colour, and this is the weak point of this Rose. Notwithstanding its dwarf growth, it makes a good standard, and will grow into a fine head 3 or 4 feet through if, as it should be, it is allowed to do so. Though not full enough for exhibition, the flowers and

buds are most useful in the decorative classes and for arranging in the house.

In the following year—1900—the same raiser brought out his great Rose, Soleil d'Or—great not in itself, for it has little to recommend it but its colour, but in its progeny, which are both numerous and beautiful. The colour is a fine, deep orange-yellow, and the outside of the petals are characteristically splashed with pink or red; but the form of the flower is flat and unsatisfactory, and I can find no place for it in the garden. It is not good enough for the beds or borders, and, though I have often tried it, I find it will not grow in the shrubbery. When planted there, it always disappears after a year or two. The best plant of this variety known to me is growing in a neighbour's garden, planted under a south wall. It is growing magnificently and flowering well. The Rose evidently requires warmth, and those who wish to grow it should take note of the fact.

In 1905, Mons. Pernet Ducher sent out two interesting Roses of this group, both H.T.s—Mme. Melanie Soupert and Instituteur Sirdey. Mme. Melanie Soupert was a great acquisition to gardens. It is decidedly taller in growth than Mme. Ravary, leaves thicker and larger, whilst the flowers, though not very full, are often good enough for exhibition. Two years ago a flower of this variety obtained a Medal at the N.R.S. summer show for the best H.T. exhibited. The colour is a delicate mixture of pale fawn and gold, with a slight tinge of peach. In the early part of this hot year I had flowers almost pink in colour; but this is unusual. As in the case of Mme. Ravary, the colouring in autumn is apt to become somewhat washed out. Fairly hardy, it often makes a fine standard, and is a really useful Rose, both in the garden and for exhibiting. Instituteur Sirdey is of a still more striking colour, the orange hue of the early flowers being very pronounced. It is beautiful in the bud, but as the flowers expand they quickly lose their charm, and become flat and uninteresting. Nor is it quite as hardy as the last-named Rose. Some short time ago I planted a bed, intended to take about 30 Roses, with Mme. Ravary, Mme. Melanie Soupert, and Instituteur Sirdey, in order to compare their values as garden Roses. After a short trial, I became convinced that Instituteur Sirdey was inferior to the other two, and replaced it by Mme. Ravary, and I find the combination of Mme. Ravary, with Mme. Melanie Soupert in the centre, quite satisfactory.

In 1906 came Marquise de Siney (H.T.), also from Mons. Pernet Ducher. It is a Rose of gorgeous colour. Golden-yellow, shaded coppery red, is the N.R.S. description, and it is not inappropriate; but the amount of the red tinge varies a good deal. Sometimes it suffuses the petals, making them of a glowing orange colour, sometimes it is confined to a suspicion of colour, merely giving the yellow a warm effect. Like many of these Roses, it is most beautiful as an opening bud, the expanded flower wanting form and coming too flat. As a garden plant, this Rose leaves a good deal to be desired. It is not very profuse in flowering, and its habit of growth is described as moderate, which often means, as in this case, that it is somewhat weak in constitution in this country. I find in my own garden that it is not long-lived, and often requires renewal.

In the same year (1906) Messrs. A. Dickson & Sons brought out the Tea-scented Rose Lena. This beautiful little Rose has many of the qualities that are lacking in Marquise de Siney. It has long, pointed buds, opening to a shapely little flower of bright apricot colour, and is in flower the summer through. I have no Rose in the garden that more frequently provides me with a flower for my buttonhole. Its defect is that it is of a very weak growth: the stems are thin and spindly, so much so that it is most difficult to bud, and though I have not yet

lost a plant of it, I fear it must be put down as tender. I doubt if I have a poorer grower in the garden.

In 1909, Messrs. A. Dickson & Sons brought out the Duchess of Wellington (H.T.), a deep-yellow Rose, with an orange or reddish tinge on the outside of the petals. This Rose seems to be an excellent bedding variety, of good habit, and specially useful in autumn. It has a long, pointed bud, and the flowers are at their best when just expanding; when fully open it is less beautiful. I planted a bed of it last autumn, and have found it most satisfactory; but I have no experience of it in a wet year. I fear it is not a Rose that will stand much rain; but this is only surmise. It is certainly a most useful Rose, and deserves a welcome and a full trial.

I now come to the Roses of 1910, and will mention five of them:—Arthur R. Goodwin (H.T., Pernet Ducher), Lady Hillington (Tea, Lowe & Shawyer), Herzogin Maria Antoinette (H.T., Welters Jacobs), Recuerdo de Antonio Peluffo (Tea, Soupert & Notting), and Reine Mere d'Italie (H.T., Bernaix). Arthur R. Goodwin is one of the progeny of Soleil d'Or. The buds and half-expanded flower are bright orange, and really beautiful. The blossoms open to a rather flat flower, with somewhat small, symmetrically-disposed petals, often having a faint tinge of salmon colour suffusing the orange. Many admire the Rose in its mature form, but, to my taste, its beauty is past when it has expanded. I have grown the plant for two years and find it a good grower and hardy.

Lady Hillington has long buds of a rich, dark orange, often splashed with red, opening to a beautiful flower. It is, however, rather thin, and its beauty is, therefore, fleeting. It is a good grower for a Tea-scented Rose, and does well in the garden; but the best and most decorative flowers seem to come when it is grown under glass. I have had Lady Hillington and Lena growing side by side this year, and have been more than once struck with the similarity of their remarkable colour; but Lady Hillington, being a much better doer, seems likely to make the better garden Rose of the two. The hot sun of this summer has been very trying to it, as to all thin Roses, and I hope next year it may prove even more satisfactory.

Herzogin Maria Antoinette I have seen only as maiden plants, and therefore speak of it with some reserve. In the bud stage, it is very like Lady Hillington, of a rich orange colour, splashed with red. The open flower is, perhaps, hardly so intense in colour, but seems to be somewhat more full than Lady Hillington. Being a H.T., instead of a Tea Rose, the petals may be a little thicker, if not quite so satiny in appearance. Next year I hope to be able to compare these Roses under more equal conditions. They are certainly both well worth a trial.

Of the two Roses I have next to mention, I have no actual experience in my own garden. Recuerdo de Antonio Peluffo should be worth trying, if only from its parentage, which is Mme. Melanie Soupert × Mme. Constant Soupert. As shown, it would seem a fine Rose, of better form than most varieties of its colour, which is a pale orange, with a slight tinge of pink; perhaps the colour is hardly deep enough to compare with the other Roses in these notes.

Reine Mere d'Italie I have not yet seen in this country, but, from report, the flowers should be a fine, deep, orange colour, perhaps only semi-double.

Of the new Roses of 1911 I have as yet only seen one that might come into this list, and that is Sunburst, raised by Mons. Pernet Ducher. This Rose was exhibited both at the summer and autumn shows of the N.R.S., grown by Messrs. Beckwith, under glass. As shown, it was certainly a lovely Rose, the centre as bright and deep as Lady Hillington, getting paler towards the edges of the outer petals. No very definite

opinion of its merits can be formed till we have been able to grow it in our gardens; but we may feel fairly satisfied of its beauty as a pot Rose when properly grown, and all who are fond of experimenting with new Roses should procure a plant for trial when it becomes obtainable.

Glancing back at these notes, the weakness of the Roses in this section seems to be in the want of form in the open flowers. Only in Mme. Melanie Soupert and in those members which belong to the Teas do we find much beauty in the fully-expanded flower. Nevertheless, they form a wonderful group, and one in which the advances made in recent years have been notable and of good augury for the future.

White Roses.

FRANCE.

CO-OPERATIVE SOCIETY FOR THE CARRIAGE AND SALE OF FRUIT AND VEGETABLES.*

In the Departments of Provence and Languedoc, where the cultivation is varied and there is a large quantity of early produce grown, a fruitful co-operative movement has been developing of late years. Under the authoritative guidance of the Union of Agricultural Syndicates of the Alps and of Provence, which comprises 250 syndicates and 250,000 members, numerous societies have arisen side by side with the co-operative wine vaults, oil works, and dairies, for the sale and carriage of fruit, vegetables, &c.

The *Bulletin of Economic and Social Intelligence*, published by the International Institute of Agriculture, gives, in the June number, an interesting account of these various forms of co-operative association. We may mention first of all the syndicates of Cuges, Lascours, Rocquevaire, which concern themselves with the sale of pickles; in the last mentioned place, the society has also started the manufacture of Apricot jam, and is doing business to the amount of 400,000 frs. a year.

The agricultural syndicate of Vallauris has organised the distillation and sale of Orange flowers; it has 1,700 members, and has an establishment at Golfe Juan which cost 200,000 frs. to set up. Thanks to its exertions, producers have seen the price of Orange flowers rise from 0.30 frs. to 1.10 and 2 frs. the kilogram.

For some time past the co-operative exportation of table Grapes has been attempted with equal success. At Cabrières-d'Aigues (Vaucluse) the growers of these Grapes have joined together in a society with a capital of 2,000 frs., and have obtained a loan from the State fund for agricultural co-operative credit of 400 frs. The Grapes are packed in baskets holding 10 kg., and are sent for the most part to the markets of Cologne and Geneva. In 1909 there were 350 quintals of Grapes exported at the net price of 18 frs., and 1910 the quantity was 250 quintals, the price being 45 frs. per quintal.

Another interesting form of association has been started with success in this region for the carriage in common of fruit and vegetables, and is likely to put the growers in a position to take advantage of the reduced tariffs granted for the expedition of complete wagon loads. There are already five societies of this kind in the Gard and Vaucluse. We may mention, for example, the syndicate of Rochefort-du-Gard, which confines itself to collecting together, at the station near the hills, the Tomatos already packed by the members, and sending them to the Paris markets. The consignment is made to a transport agency in the capital, which agency delivers the goods at their destination, collecting the sums indicated in the various invoices for the account of the syndicate.

This system has reduced the carriage expenses by half, and has been the means of lengthening the season for the expedition of Tomatos by

* Summarised from the *Bulletin of Economic and Social Intelligence*, Year II., No. 6, published by the International Institute of Agriculture.

three months. In 1910 the syndicate sent off more than 1,000 tons of produce, the railway expenses for which were 60,000 frs., and those for unloading and distribution in Paris about 8,700 frs.

The neighbouring syndicates have adopted similar measures for the consignment of Cauliflowers, Potatoes, &c., which are sent to England and Switzerland.

A new association which has arisen at Carpentras for the sale of grafted vines which have been grown by the members is worthy of mention. The Nurserymen's Co-operative Society of Vaucluse has a capital of 7,500 frs. at the present day, and 2,000 members who have 150 acres of land out in nurseries. In 1910 about 18,000,000 wild vines were planted, the total expenditure being 300,000 frs., and 5,500,000 plants of first quality were sold for 550,000 frs. The society supplies its members with manure and vine cuttings, and pays each member 60 frs. on account for every 1,000 vines delivered. Within a very short time it has succeeded in regulating and improving the trade in these products, which is daily acquiring greater importance in connection with the reconstitution of vineyards in France and Algiers.

THE FOURTH INTERNATIONAL CONFERENCE ON GENETICS, PARIS.

SEPTEMBER 18-23.—A general account of the proceedings at the recent conference on genetics has been given already in these pages (274-5). This account we now supplement by somewhat more detailed reference to certain of the memoirs which were presented to the conference.

THE RAISING OF DISEASE-RESISTING PLANTS.

Mr. W. A. Orton, Pathologist to the Department of Agriculture, Washington, dealt with the problem of disease in plants, and described the results of experiments in breeding varieties resistant to specific diseases. The experiments concerned, mainly, the group of diseases known as wilt diseases, which are due to parasitic species of the genus of fungi known as *Fusarium*. Thus *Fusarium vasinfectum*, Atk., is responsible for wilt in Cotton; *Fusarium tracheiphilum*, Erw., Sm., gives rise to the wilt of the Cow Pea (*Vigna unguiculata*), and *Fusarium nivium*, Erw., Sm., to the wilt of the Water Melon (*Citrullus vulgaris*). *Fusarium* is a genus of parasitic fungi the species of which are highly specialised, and live in the vascular tissues of their respective hosts. Infection takes place from the soil through the young roots, and occurs independently of conditions, favourable or otherwise, in which the host-plant is growing.

Among Cotton plants, the degrees of resistance to wilt is generally but slight, though occasionally a Cotton plant is met with which is immune. By self-fertilisation of such a resistant plant, strains of plants have been raised which have maintained their powers of wilt-resistance for several years. The photographs showing the ravages caused by this parasite (fig. 129) among ordinary Cotton plants, and the resistance of a strain Dillon (fig. 130) are remarkable illustrations of the power which would appear to lie at the hands of horticulturists to mitigate disease by raising resistant strains. It should be added that the illustrations (figs. 129 and 130) show contiguous fields in S. Carolina, the soil of which is known to be thoroughly infected with *Fusarium vasinfectum*. Indeed, with respect to the ground shown in fig. 130, the preceding year's crop was entirely destroyed by wilt.

RESISTANCE TO EEL WORM.

Mr. Orton's experimental breeding work with the Cow Pea is peculiarly interesting and important, inasmuch as he has shown that, in the first place, a variety may exhibit resistance to the

tack of more than one kind of parasite. Thus, a variety, Ivon (fig. 127), has proved to be immune from the attack of the wilt fungus (*Fusarium tracheiphilum*), and also from root-knot, the disease caused by the eel worm (*Heterodera radiculicola*). When the resistant variety, Ivon, is crossed with high-yielding but susceptible varieties, the resulting hybrids (F_1)

regions. Thus it is immune from wilt when grown in S. Carolina and Iowa, but loses its resistance in Oregon. Though this fact cannot fail to be disturbing to the practical mind which would wish to secure a disease-resister once for all, it is by no means surprising, and shows that, in attacking the problem of raising disease-resisting forms, locality must be taken into considera-

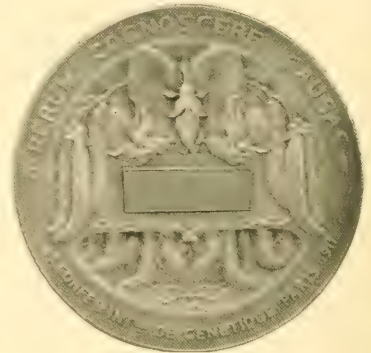
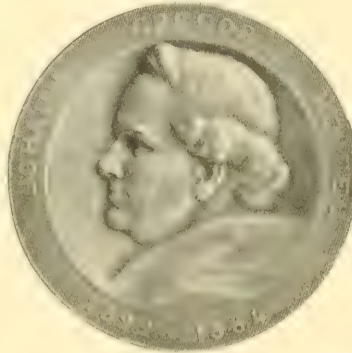


FIG. 126.—MENDEL MEDAL TO COMMEMORATE THE FOURTH CONFERENCE ON GENETICS HELD IN PARIS IN SEPTEMBER, 1911.

are resistant, and in F_2 plants are obtained which combine this quality with that of the high yield characteristic of the other parent.

WATER MELONS AND WILT.

The problem of discovering wilt-resistant varieties of Water Melon (*Citrullus vulgaris*) was rendered difficult by the fact that none of the edible varieties is immune. It was therefore necessary to start with a non-edible resistant variety, and to cross it with the better varieties in cultivation. In F_1 the hybrid showed qualities intermediate between those of the parents, F_2 exhibited great variability; but in the third

generation. We hope that, with the encouraging results of Mr. Orton's work before them, experimenters in this country will turn their attention to the problem which Mr. Orton has investigated so ably, and that, before long, we shall learn that strains of Potato resistant to dry rot (due to *Fusarium solani*), Holyhocks resistant to rust, and Sweet Peas immune from streak have been raised in this country.

DISEASE RESISTANCE IN POTATOS.

Mr. Salaman, in the course of a paper on the breeding of the Potato, described the results which he has obtained by raising seedlings from



FIG. 127.—COW PEA FIELD IN SOUTH CAROLINA.

On the left, the variety "Ivon" which resists root-knot and wilt; on the right, another variety decimated by these diseases.

generation (F_3) a race was obtained which was resistant to wilt and of edible quality. Subsequent selection during five years has resulted in the isolation of a variety, Conqueror, which leaves nothing to desire with respect to resistance and general quality. It is noteworthy that the variety Conqueror is not resistant in all

Solanum etuberosum, among which a certain number of plants immune from late blight (*Phytophthora infestans*) were obtained. Our readers are already familiar with Mr. Salaman's work, an account of which has been published already in these pages (see *Gard. Chron.*, December 24, 1910, p. 461).

RESISTANCE TO COLD.

Dr. H. Nilsson-Ehle, of Svalof, Sweden, contributed a paper entitled "Acclimatisation by Recombination of Mendelian Factors." In the period previous to exact experimental work in genetics, much loose talk was heard on the subject of acclimatisation. It was known that when, for example, cereals are grown in a country the climate of which is colder than that of the country of their origin, the "race" might become harder. It was assumed that the race, as a whole, had undergone a change in response to the change of climate—in short, that a mutation had occurred. Nilsson-Ehle has shown, however, that what really happens is that the climate acts as an eliminator of the more delicate members of the original race, and that the supposed new and harder race is composed of the descendants of the original small band of plants which possessed factors for hardiness. The old assumption that, because a race is pure with respect to certain characters, it is pure with respect to others, has been shown to be erroneous, and, in the case under consideration, the original "race" was composed of members

critical importance in a new region of harder climate. There natural selection will begin to do the work left undone by artificial selection, and will destroy those which have not the powers requisite to resist the climate of the new region.

How selection—natural or artificial—works in such cases is the problem which Dr. Nilsson-Ehle sets himself to solve. He gives evidence to show that qualities such as resistance to cold, precocity of flowering, &c., each depend gener-

resistance experiments—for the first generation may well be susceptible to cold, and hence suffer destruction. All that is necessary in such experiments is to raise an abundant second (F_2) generation, and to subject the members of that generation to the test of cold or drought.

IN-BREEDING AND CROSS-BREEDING.

Mr. Bruce, Superintending Inspector of the Board of Agriculture, contributed a paper on this

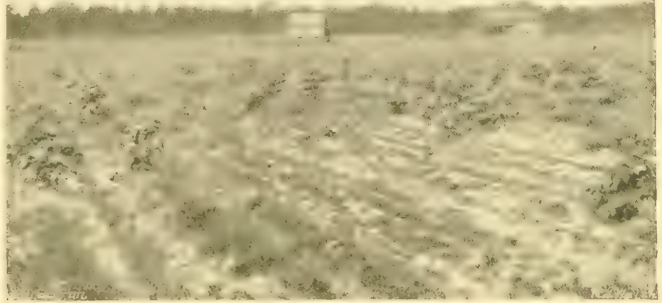


FIG. 129.—COTTON FIELD IN SOUTH CAROLINA DESTROYED BY "WILT" (*FUSARIUM VASINFECTUM*).

ally, not on single Mendelian factors, but on a series of factors: hence the business of the breeder is to bring about, by cross-breeding and isolated raising of F_2 and subsequent generations, the various combinations of these factors, some of which combinations will result in increased hardiness or other desired quality. The practical importance of this view lies in this, that, if the Mendelian factors concerned are but few, the desired result may be obtained in a few generations; but if they are numerous, it may take many generations before the best set of factors come together and combine to produce the desired result.

subject of Heredity of Quantitative Characters. He pointed out that many of the characters which are of the greatest practical importance are not qualitative, but quantitative in nature; for example, milk yield, seed yield, and so forth. From experiments which he had made with Barley, he had not been able to discover that the characters which he had investigated were susceptible of Mendelian analysis. To determine whether the Mendelian hypothesis of unit characters is applicable to quantitative, as well as to qualitative characters, and also to ascertain whether increased vigour attributed to cross-breeding and related to it, could be ascribed to



FIG. 128.—ROOT-KNOT ON COW PEA (*ASCOCHYTA BLIGHT*).

1. A variety badly affected with root-knot caused by *Ascochyta*; 2. the variety "Bountiful" which is immune from the disease.

which differed widely from one another with respect to hardiness.

An example of this newer and more correct way of looking at things may be given. Of garden Peas, Autocrat and Bountiful are as fixed as any with respect to the characters with which growers are immediately concerned. They are both middle races, one late, the other early, and so on; but with respect to characters which do not immediately concern the gardener or the grower, Autocrat and Bountiful, and any other varieties of Peas on the market are not pure. A keen eye will distinguish in a row of any variety of Peas minor differences, particularly in size and tint of foliage, degree of branching, &c. Since, however, many of these "points" are of no practical importance, they are properly ignored by the raisers and growers. So, in the case of cereals we have referred to, if a *high degree of cold-resistance* is a matter of indifference to the grower who raises the variety for use in a given locality, the variety is practically sure to be "impure" with respect to this character. What is a matter of indifference in the original locality may become of

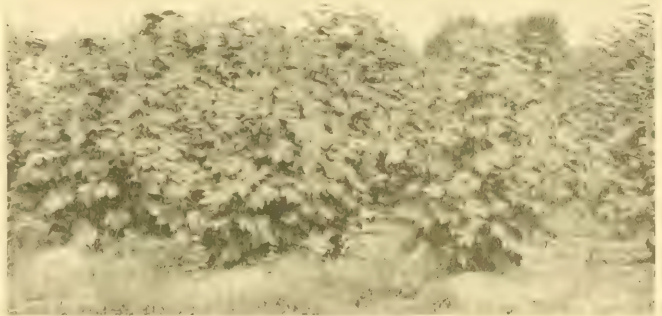


FIG. 130.—COTTON FIELD IN SOUTH CAROLINA PLANTED WITH THE WILT-RESISTING VARIETY "DILLON."

A point of practical importance in connection with the raising of cold-resistant varieties was made by Dr. A. L. Hagedoorn, in the course of a communication on "Genetic Factors and Environmental Factors in the Improvement and Raising of Varieties." When the object of the breeder is to raise by hybridisation a cold-resistant variety, it is not necessary to subject the first (F_1) generation to the test of culture in a cold situation—and the same applies in drought-

in-breeding are Mendelian phenomena, would mark a great advance in our knowledge of Genetics.

BROCHETTE PEAS.

Mr. M. de Vilmorin described a variety of Pea in which the ends of the pod adhere to one another in a row. This "brochette" character segregates normally.

(To be continued.)



The Week's Work.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

MUSHROOMS.—Beds which were sown about the middle of August should be producing plenty of Mushrooms, and will require careful attention. The temperature of the house should not be allowed to rise above 65° in mild weather; during cold weather it may be allowed to drop to 55°. When the surfaces of the beds become dry, a gentle watering with rainwater should be applied through a fine rose. Damp the floor and walls of the house to create a moist atmosphere, but avoid a stagnant one by opening the top ventilators when the house appears overcharged with moisture. This is especially necessary when fresh beds are being made. It frequently happens that the moisture arising from fresh manure introduced to the house is injurious to the existing crop, unless sufficient top ventilation is provided to allow it to escape. Collect horse droppings for successional beds, and place them in a dry, airy shed, where they may be turned daily until they are ready for removal to the Mushroom-house. They may be turned once or twice when in the house to prevent sourness, after which they should be beaten tightly together, and the spawn inserted when the temperature of the bed has declined to 80°. After a few days, if the temperature of the bed is still declining, the surface should be covered with a layer 1 inch deep of finely-sifted loam, made firm by beating with the back of a spade.

CUCUMBERS.—Plants which were put out early in August will now be coming into bearing, and they will require very careful treatment in regard to cropping if they are expected to yield the main supply during winter. If, however, one or more houses have been planted for succession, the August plants may be allowed to bear more freely. In private gardens, it is better to maintain a small, regular supply than to have a large quantity at one time, and none at another. The best way is to remove all young Cucumber fruits over and above those required for the daily supply, before they become large enough to affect the plants adversely; by this means the plants will be kept in a healthy condition throughout the winter. Keep the growth well thinned out, and remove some of the oldest leaves in order to make room for the young shoots, which should be allowed a little more freedom of growth in winter than in summer. Encourage the roots near the surface by affording frequent light top-dressings of loam and leaf-mould in equal quantities throughout the winter months. Whenever the weather is favourable air should be admitted, even if only for a short time during the early part of the day, in order to keep the atmosphere sweet; but cold draughts must be prevented, and the temperature of the house should not be permitted to fall. Maintain an atmospheric temperature of 70° at night during mild weather; and in the day the temperature may be allowed to rise, with sun heat, to 85°.

RHUBARB.—A number of roots should be dug up as soon as possible, and allowed to remain in the open, in order to prepare them for forcing. This plant is a very easy one to treat in this way, provided the roots are in a good condition when placed in the forcing pit. "Daw's Champion" is the variety grown for forcing purposes at Frogmore. The roots are allowed to remain in the ground three years from the time of planting, and they are then forced in slightly heated pits over a bed of leaves, which produces a mild bottom heat. Fine soil is spread over the bed, a few inches deep, and the roots are placed closely together, any spaces between them being filled with fine, sifted earth, which is watered in among them with clear water applied at a temperature of 70°. A large quantity of fermenting material is unnecessary, but just sufficient should be used to create a mild bottom heat. The number of roots to be placed in heat at one time will depend on the quantity of Rhubarb which will be required daily, but probably 12 to 18 roots will be sufficient.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

PERPETUAL-FLOWERING CARNATIONS.

Cuttings of perpetual-flowering Carnations may now be taken for raising plants to flower in the open garden next season. It is usual to make the cuttings of side shoots, taken off with the heel attached, but longer and stronger growths are also suitable, and these, if cut directly beneath a joint, will root in even less time than the others. A large number of cuttings may be inserted closely together in an ordinary cutting box, in which a 2½ inch layer of sharp sand has been placed. Let the sand be thoroughly soaked with water, and then simply push the cuttings into it. The temperature of the house in which the cutting box is placed need not exceed 60°. The sand must be kept very wet until the roots are formed, but afterwards the plants may be transferred to other boxes filled with a sandy compost.

HOUSING TENDER PLANTS.—It will not be safe to allow tender subjects to remain in the open after this date. In the case of those in pots that have been plunged in the soil, all that is necessary is to cut back any roots that have grown through or over the pots, trim the shoots, remove rambling growths, and after the pots have been cleansed place them in a cool house. Exercise great care in watering the plants. Those that have been planted out must also have their roots trimmed before they are potted, selecting the very smallest receptacles that will accommodate the mass of soil and roots. It is an advantage to allow them to remain in a sheltered position out-of-doors for a week or 10 days after they are lifted, but it must be somewhere near cover so that they can be brought indoors easily if frost sets in. A very satisfactory way of keeping these over the winter is to plant them in soil in a glasshouse or in borders of cold fruit houses. *Lobelia cardinalis* may be placed on the hard bottom of a cold frame, filling in the intervening spaces between the clumps with leaf-mould, and covering them with a 2-inch layer of the same material. If only a small number is grown the plants may be placed in cutting boxes and covered with leaf soil; in either case sufficient moisture will be provided by the leaves until the spring. Anthericum needs a warmer house. The Hollyhock is so often treated as an annual or biennial that the value of old stools is overlooked. Yet the plants will live and thrive for many years, and some of these old specimens are now flowering a second time and producing new foliage from the base. My practice is to cut the stems down to about a foot from the ground, and cover the roots with a mound of soil about a foot deep. The soil is removed in the spring, and the plants flower earlier than seedlings.

GILIA, CORONOPOLIFOLIA.—There is yet time to raise a batch of plants of *G. coronopifolia* for next season, although the seeds are best sown in the summer. In the south, January is a good time to raise a stock of plants for flowering in the following autumn. The plant may be used very effectively as a dot plant or for grouping near the front of a mixed border; in the latter case carpeting with some other plant will be necessary as *Gilia* does not cover the ground unless very closely planted. At the present time the plants are flowering at Tynninghame, and they may be easily singled out for their brilliance. In these gardens *Gilia coronopifolia* attains a height of from 4 to 5 feet.

TRANSPLANTING SHRUBS.—The transplanting of shrubs, particularly of evergreen shrubs, may now be proceeded with. This is the best season for the work, because the plants will have time to recover from the disturbance before winter. I have examined some that had their roots cut early in the year, and it is worthy of notice that they bristle with new fibrous roots, and do not appear to have suffered from the drought. Where the soil is still dry, it will be necessary to give a good soaking of water after planting, making a basin around the stem of each plant for the purpose. Place a stout stake on the side opposite to that whence come the strongest winds, and make the plants secure to it. In the case of tall specimens three stakes should be used, placing them obliquely to form a triangle. In the case of specimens occupying prominent positions iron rods with triangular feet are superior to any other method of staking.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

STOVE FOLIAGE PLANTS: CALADIUM.

Those who grow Caladiums have sometimes found to their cost that, upon shaking out the bulbs for re-potting early in spring, the latter are decayed or sufficiently injured to impair their vitality to a serious degree. It is in the autumn that the mischief is most frequently done, when, for want of room, and because the plants are unattractive they are placed for a time in a cooler house—perhaps in a vinery or some such place—where no warmth whatever is maintained. Caladiums are easily injured by this sort of treatment, even if kept upon the dry side. On examining a decayed plant, it will be perceived that what appears to be a kind of "dry rot" has set in; this impression is, however, erroneous, the fact being that when the plants have been subjected to a severe chill the whole of the root becomes a mass of rotten matter, the apparent "dry rot" being only a secondary consequence. All Caladiums which are being dried off should therefore be retained in the stove, but should be laid upon their sides. If, however, there is a lack of space, they may be shaken out after a few weeks, and the bulbs placed in sand, still keeping them in a warm place; in this way I find that they keep well and require very little room.

ALOCASIA.—Plants of evergreen Alocasias may now have the older leaves removed, and those leaves which are still fresh can be tied into a smaller space. During this operation it is well to look out for any signs of red spider on the under surface of the leaves, and also for thrips. The deciduous species may now be gradually dried off, but should not be shaken out as the Caladiums.

CODIÆUM (CROTON).—I have often been very successful in the propagation of Crotons, at this season of the year, without depending upon any previous ringing, although this latter method of propagation is by no means to be despised if sufficient heat is not available. For the rooting of cuttings I cut off the shoots to the required length and insert each one in a thumb pot in firm, sandy soil. I then place the pots containing the cuttings on a hot-bed of a close pit, and protect them by standing one square garden hand light upon another, with one on the top to cover the cuttings. This impromptu arrangement has always been kept full of cuttings at this season. In average conditions it takes about six weeks to root the cuttings, and they are afterwards hardened off gradually.

ARALIA.—Plants of *Aralia*, which have grown too tall should be cut down to make more room. These, if kept dry for a time, will usually put forth fresh growth. When these shoots are long enough, they may be removed with a heel attached for propagation; each plant will supply several such cuttings.

THE ORCHID HOUSES.

By H. G. ALFANDER, Orchid Grower to LL.CO. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

VALUE OF LIGHT.—The agreeable warmth and sunshine cannot be expected to last much longer, and may now at any time be succeeded by more seasonable weather. Taking the season as a whole it has perhaps been unparalleled for its beneficial effects upon all Orchids that appreciate more or less a good clear light, and most cultivators can happily congratulate themselves upon the good results attained. The value of light is of the greatest importance, yet this factor is often neglected especially by amateur growers. Plants afforded the maximum of light are not only more free-flowering, but they are less susceptible to the effects of slight errors of treatment in other ways. Orchids are easily grown under a heavy shade all through the summer months, and the fresh green appearance of some of the plants would doubtless deceive any but the practical eye, but the growth made under such conditions is not the kind to withstand the least check. Even shade-loving Orchids may easily be ruined, by keeping them too heavily shaded, for the growths suffer during winter if there is a fall in the temperature of only a few degrees below the normal. The time of year is

now fast approaching when light is of vital importance, and too much thought cannot be given to this matter. Anything that can be done in the way of shifting plants to bring them nearer the glass, or any other alteration that can be made to give each one room to stand clear of its neighbour, will repay the trouble. Especially is this the case with plants that are at all backward in growth, for light, even more than heat, is necessary to harden the tissues, and give the pseudo-bulbs, and foliage that robust and finished appearance so well known to be the forerunner of satisfactory flowering. Orchid growers in the neighbourhood of large towns will have a difficult task before them for the next few months, the heavy atmosphere retaining in it all kinds of impurities. This trouble is the worst, but even in country places where the houses are in proximity to deciduous trees, the falling leaves in autumn make a lot of work in keeping the glass clean. This cleanliness is, however, absolutely necessary for the plants. The glass should be well washed down frequently on the outside; the inside does not get coated over so quickly except during foggy weather, when this ought also to be cleaned by using a sponge and rinsing it frequently in clean water.

CALANTHES.—Plants of the *C. vestita* and *C. Veitchii* groups are now showing their flower spikes. Expose the plants fully to the light and admit plenty of air whenever the outside conditions permit. Water should not be withheld until the foliage has nearly decayed for if the plants are allowed to become dry, the roots perish and the pseudo-bulbs are much smaller next year than they ought to be. If a little manure water has been given to them occasionally the spikes should be strong, and produce richly-coloured, well-formed flowers. After the flower-spikes are visible, water should be carefully applied until the flowers are fully developed, decreasing the amount from now until the foliage has decayed, very little being required during the flowering period.

PLATYCLINIS COBBIANA.—When the flowers of this Orchid are passed, no time should be lost before examining the roots, and any that require repotting should have immediate attention. The same kind of potting mixture as that recommended for *P. glumacea* in the calendar for April 15 should be employed. The forming pseudo-bulbs soon begin to root freely after being disturbed, and entering the soil they soon become re-established. The plants should be afforded a light position in the warmest house with ample moisture at the roots, and in the atmosphere, until they have completed their growth. When the pseudo-bulbs are fully matured, less root moisture and a cooler temperature will suffice during the resting period.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VISCOUNT GREYS, Adelphi House, Hertfordshire.

CUCUMBERS.—The bright weather experienced during this month has favoured the growth of Cucumber plants; it has been possible to ventilate the house and apply frequent syringings. Light top-dressings may be applied as the plants seem to require them, to encourage further root action. The heavy mixtures which are used with advantage earlier in the season should now be avoided, employing a lesser quantity of a dressing of a lighter nature. Growth must be carefully regulated, and more space allowed than heretofore; whilst the fruits should be cut directly they are ready. The glass outside should be well washed from time to time, in order to admit all the light available. Maintain a night temperature of from 65° to 70° if possible, without unduly heating the pipes. Less moisture will be required after this date, therefore damping must be done with the utmost care, and it should be governed by the amount of fire-heat employed, for while it is disastrous to allow the atmosphere to become arid, an excessive amount of moisture is not less injurious.

MELONS.—Late crops of Melons must be the object of special care as the fruits ripen; a certain amount of fire-heat must be maintained, and the house kept thoroughly ventilated and dry by a circulation of air both day and night. Remove any superfluous foliage, so that the fruits may be exposed as much as possible to the sun. As the fruits mature, cut them and place

them in the fruit room; before the fruits are sent to table they should be exposed in a warm house near the glass for a couple of days.

PEACHES AND NECTARINES.—The usual routine during the successive ripening of these fruits should be carried out—washing the houses, cleansing the trees, and so on. The planting of young trees, or the removal of any for which a change of position is thought desirable—whether in late or early houses—may now be effected with advantage. Planting the trees, especially if they are of a fair size, is an operation which needs great care. The fibrous roots must be preserved by gently working away the soil with a fork, but a good ball of soil should always be retained round the roots, and this can best be insured by lifting the root system on to a strong mat and tying it up. The hole for replanting must be sufficiently large not to cramp the roots; they should be laid out carefully, and after the soil is filled in, it should be made thoroughly firm by treading (with the sole of the foot, not the heel). A good soaking of water and a mulch should afterwards be applied, and no attempt made to tie the branches until the soil has settled. When practicable, it is a good thing to grow a few young trees out-of-doors against a wall, or in unfurnished spaces in cool cases; if they have to be transplanted every year so much the better. Young trees thus treated can always be well trained and brought into good shape against a trellis.

POT PEACHES.—Trees in pots, intended for supplying early fruits, should now be placed in position for forcing. Arrange the plants so as to avoid overcrowding, and in order to prevent the ingress of worms, whether the pots are plunged or not, see that they stand on a firm bottom. Allow an abundance of fresh air both by day and night, until the time arrives for closing the house, and gradually reduce the amount of air allowed at night until it is shut up. Very little fire-heat should be employed in the early stages; the temperature should be kept at about 40°.

THE HARDY FRUIT GARDEN.

By W. HERBERT WARREN, ARDOL CHITON GARDENS, Buckinghamshire.

WINTER DRESSINGS FOR WALL TREES.—The application of preparations for the destruction of insects on wall trees is very necessary, because insects are apt to lodge and deposit their larvae in various parts of the trees, or in holes and crevices in the wall. If these survive the winter months they issue forth in spring, increase rapidly, and may do serious injury to the trees. If the trees are found to be infested with insect pests at the time the leaves and shoots are tender, attempts to destroy the pests often result in injury to the trees, whereas if a winter dressing is applied whilst the trees are in a dormant state, the risk of such injury is avoided. The wisdom of applying a suitable dressing at the proper season of the year is therefore obvious. The trees should be pruned before being dressed, and every branch entirely loosened from the wall. The insecticide is best applied with a painter's brush of suitable size, and when dealing with the young wood, especially Peaches or other stone fruit, the brush must be drawn towards the end of each shoot, and not in a contrary direction, or the soft buds may be loosened or otherwise damaged. The preparation should be worked well into the rough bark and the older parts of the tree, for this is where the insects usually deposit their eggs. Espalier trees may be treated in exactly the same manner. A winter dressing on all kinds of fruit trees, whether by this method or by spraying, is not only necessary for the destruction of insect pests, but clears the trees of lichen which is detrimental to perfect growth. The walls also must be brushed and cleaned, and all holes and crevices filled with cement before the trees are again tied or nailed into position. Many kinds of suitable compositions for winter dressing are now offered for sale. Most of them are reliable, if used according to the directions given by the manufacturers, and in no instance should the strength of the dressing be exceeded, or serious damage may be done to the trees, and a valuable remedy condemned because of careless handling by an inexperienced person. In matters of this kind careful measurement is essential.

The following is an excellent dressing, safe to use, and it has the advantage of being of a less creamy consistency than most home-made insecticides. To six gallons of boiling water add 1 lb. of soft soap, 2 lbs. of flowers of sulphur, and 2 ounces of common shag tobacco. Boil the tobacco and sulphur in the water for 30 minutes, then add the soap. When quite dissolved, strain the whole mixture through a fine hair sieve, or a piece of coarse muslin. The dressing might be prepared in a more concentrated form and diluted accordingly.

STOCKS FOR FRUIT TREES. This is a matter that must be left largely to the judgment of the planter, but it may be well to mention as a guide for those intending to plant trees in special positions that Pears for planting at short distances apart must be worked on the Quince stock, Apples on the Paradise stock, and Cherries on the Mahaleb stock. Pears for planting at wider distances should be worked on the Pear stock, Apples on the Crab, and Cherries on the common Cherry stock. Pears and Crab stocks root deeper, and are more suitable where large and stronger trees are required, whilst the Quince, Paradise, and Mahaleb stocks are more adapted for restraining growth, their roots being of a fibrous, surface rooting character. Where any doubt exists as to the suitability of any stock, for any soil or district, it is wise to seek local advice upon the matter, generally most readily given by those in the trade.

THE FRENCH GARDEN.

By PAUL AUBATIN.

WINTER CROPS.—A quantity of soil should be sifted in readiness for covering the crowns of Chicory Witloof late in November when forcing is commenced. The soil should be placed in a dry shed till it is required. Curled and Batavian Green Endives planted in August must be sheltered from frost by covering the beds with old hay, straw or mats. Cabbage Lettuces that were planted in frames or under cloches early this month are well established, and a little ventilation may be afforded in bright weather. Guard against injury by frost by spreading mats over the frames when necessary.

SPRING CROPS.—The batch of Spinach sown in August for furnishing an early supply of leaves in the spring should be kept clean, and the plants thinned where necessary. If the growth of the foliage is too luxuriant the coarsest leaves should be removed, as they are generally attacked by mildew. The principal work in this department requiring attention is the pricking out of the Lettuces in their winter quarter. Where decayed manure has been employed liberally as a top-dressing, transplanting with the fingers is recommended, as it is not only expeditious, but prevents the bruising of the tender stems which is so frequent when a wood dibber is used. The Lettuces are pricked out as soon as the cotyledons are expanded. Thirty plants are generally placed under each cloche, but when there are plenty of bell glasses available, 24 plants will be sufficient. A sowing of Lettuces "White Passion" and "Paris White," the latter of the Cos type, should be made now to produce plants for planting out in the early spring. The Onions sown in August are ready for putting in their final quarters. Select clean and rich ground, and plant them in rows at a distance of 6 inches apart, allowing 3 inches between the plants in the row. Small and weakly plants should be allowed to remain for the present in the seed-bed; they can be planted out in the early spring.

GENERAL WORK.—The old manure beds should be broken up to supply the soil for the hotbeds next spring. The wettest material should be placed on the top to dry. The collecting of manure must be continued without delay. We have been fortunate in obtaining a regular weekly supply of five tons all the year round, and this has proved a great advantage, as the stacking of such a small quantity every week does not disturb the routine of general work, and there is always a good quantity in hand for an emergency. Manure collected in the summer remains absolutely dry. From the end of this month another stack will be started to form the "fresh" manure. It will have time to sweeten and become free from fungous growths before it is used early in January.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. COMMUNICATIONS OF WRITERS CONCERNING THE EDITORIAL, and especially in the sphere of horticulture and gardening, are invited. If desired, the signature need not be printed, but kept as a guarantee of good faith.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of noteworthy events, and by inferring to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors receive with interest and select photographs or drawings, suitable for reproduction, of gardens, or of horticultural objects, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents writing newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, OCTOBER 23.—Nat. Chrys. Soc. Executive Com. meet.

TUESDAY, OCTOBER 24.—Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Rev. Prof. Geo. Henslow, on Prof. Hagedorn's "Cause and Structure of Flowering Plants in Dry Situations.")

WEDNESDAY, OCTOBER 25.—Coventry Chrys. Soc. (2 days). Irish Gard. Assoc. and Benev. Soc. meet. Hereford Fruit and Chrys. Soc. (2 days).

FRIDAY, OCTOBER 27.—Maidenhead Chrys. Soc. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich 47.7°.

ACTUAL TEMPERATURES.—LONDON.—(Wednesday, October 18 (6 P.M.) Max. 63°; Min. 47°.

Gardeners' Inimice Office, 41, Wellington Street, Covent Garden, London.—Thursday, October 19 (10 A.M.): Bar. 29.9"; Temp. 58°; Weather—Dull.

PROVINCES.—(Wednesday, October 18. Max. 57°; Min. 34°; Wind. S.W. 4 P.M. 14 m.p.h.)

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY AND WEDNESDAY.—BIBB AND SARGENT, Nursery Stock, at Millard Nurseries, near Godalming, by Protheroe & Morris, at 12.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY.—Dutch Bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 10.30.

MONDAY, WEDNESDAY AND THURSDAY.—Bulbs, Lilioms, Roses, Shrubs, Perennials, &c., at Stevens's Auction Rooms, 38, King Street, Covent Garden, London, W.C., at 12.30.

WEDNESDAY.—An importation of 1,000 cases Japanese Lilioms, also Miscellaneous Bulbs, at 2; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

THURSDAY AND FRIDAY.—78th Annual Sale of Nursery Stock, at Hollamby's Nurseries, Groombridge, near Tunbridge Wells, by Protheroe & Morris, at 11.30.

Orchids from the Harefield Hall Collection, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

The *Scientific Bulletin* of the Royal Agricultural College, Cirencester, contains a Preliminary Report on Forestry Investigations at Colebourne, Gloucestershire.

At the outset, the authors of the report pay a well-deserved tribute to Mr. H. J. Elwes, who has given yet another indication of his interest in forestry by putting at the disposal of the College one of his experimental plantations and by helping the investigators in many other ways.

There is thus available for observation and experiment a plot of ground, some of which has been planted already and the history of all of which is known.

The altitude of the land under observation ranges from 574-670 feet, and the soil is a very shallow, brashy loam varying from 4-10 inches in depth, overlying broken-up, inferior oolite rock.

Briefly stated, the problem which those

in charge of the forestry experiments have set themselves to solve is the following:—Experimental plantings of a considerable number of different trees on land which, apart from its thin soil, might be expected to grow timber satisfactorily, have led, on the whole, to very poor results. Few of the many species of trees which have been planted have succeeded. Among the most conspicuous failures or partial failures are Austrian Pine, Tyrolean and Japanese Larch, Birch, Beech, Spruce, Weymouth and Douglas Pine. What have been the causes of the failures and of such successes as are exhibited?

The problem is worthy of a thorough scientific investigation, and if the work is carried out well it is bound to lead to valuable results.

At the same time the results so far obtained do not appear to throw any very clear light on the question. We take it that the most casual observation would of itself suffice to show that tree growth on the plot is not strikingly successful. Till, therefore, the results of the scientific investigation now in progress have produced certain evidence as to the reason for the existing state of affairs we do not think it is necessary for the investigators to bother about the light which their observations may some day throw on the general problem of afforestation. The time for that will come when they have passed beyond the preliminary stage of the investigation. If we may venture on a further and friendly criticism we would remark that the programme which the investigators have drawn up for themselves might be simplified. They propose to make what may be called an ecological survey of their experimental plot, and to investigate all the meteorologic, climatic, and edaphic conditions thereof. In so far as this can be done by mere routine observations—of rain and wind gauges and of the ordinary meteorologic apparatus—particularly of soil thermometers, this is all to the good. But we are inclined to think that an absolutely thoroughgoing examination of what would appear to be one or two limiting factors of tree growth would be more likely to provide a solution of the problem which the forestry staff at Cirencester has set itself.

The most cursory examination of the data provided by the Report suggests that among these limiting factors are thinness of soil and hence also poorness of water content, richness of the soil in lime (one plot contains 19.25 of lime reckoned as oxide), and range of soil temperature. To investigate any one of these factors *experimentally* and thoroughly over the area of the land under observation would tax the resources of a considerable staff for at least a couple of years, and probably a good deal longer. Yet, unless the effects of each factor, which commonsense suggests to be of prime importance in limiting tree growth, are probed in fundamental manner, no considerable or certain advance in our knowledge of the *practical* physiology of tree growth is likely to be made.

Whole batteries of instruments, rain gauges, thermometers, anemometers, &c., may yield up their records daily for years

and years without necessarily throwing light on the factor which limits the proper growth of the trees in a given situation. All they can do is to suggest an explanation, and in the long run experiment will have to provide the certain answer. Everyone knows the complexity of the conditions which beset the life of a plant, and hence it would appear necessary to endeavour to unravel this complexity by paying attention to all the numerous factors which combine to produce it. In point of fact, however, this is not the true method of science. That method is as simple in principle as it is difficult of practice. We must guess—like a detective guesses—as to the prime agent of this environmental crime against tree growth, and then call in the aid of experiment to confirm or disprove our surmise.

The problem which the foresters at Cirencester have set themselves to solve is a fine problem, and we wish them well in their efforts to resolve it.

On another page we publish **Sweet Peas**, the official lists of the National Sweet Pea Society. For a number of years the Society has carried out extensive trials, which are inspected by a committee of experts having power to make awards. In drawing up the classification, which is the work of the same committee, all varieties in commerce are considered, and, after discussion and divisions, the list is published. It may be taken for granted that no variety is placed at the top of the list, or even attains to second or third place, which does not possess real merit. A remarkable feature of this list is that it shows how the old type of Sweet Pea has been discarded. In the approved list of eighty-one varieties only four old-type varieties appear, all others being Spencer or waved flowers. Several new colour classes have been added, and some of the old classes sub-divided. Many notable new varieties appear for the first time in the lists. At the top of the bicolors is Mrs. Cuthbertson, a flower of remarkable purity of colour. Mrs. Routzahn, an American introduction, takes first place in one of the cream-pink sections, and Doris Usher, raised by Mr. Usher, is first in the other. Dobbie's Sunproof Crimson now comes to the top of the crimsons. In the section known as "Fancies," three of Mr. Bolton's introductions hold the field, with Afterglow at the top. Mauve Queen, a new variety this season, has received the Award of Merit of the National Sweet Pea Society. May Campbell, a very distinct, marbled variety, also distinguished this year with an Award of Merit, stands at the top of its section, supplanting the old-type marbled variety, Helen Pierce, which hitherto has been the sole representative of the marbled class. New colour classes are maroon-purple and maroon-red, in which respectively Arthur Green and Red Chief are pre-eminent. In the important section of mauve, Queen of Norway supplants Tennant Spencer and others. Edrom Beauty and Helen Grosvenor are first and second in orange-



Photographs by H. N. King

LONGFORD CASTLE, WILTSHIRE, THE RESIDENCE OF THE EARL OF RADNOR.

pink, where Helen Lewis held for years undisputed sway. Thomas Stevenson, a magnificent flower, is in its right place as first amongst orange-scarlet varieties. In the pink or Countess Spencer section, Elfrida Pearson is first and is followed by Hercules. Rosabelle, quite a new-comer, supersedes Marie Corelli and Marjory Willis. No class of Sweet Peas is more beautiful and none more difficult to cultivate than the salmon shades. Earl Spencer is the best-known variety, but it now takes fourth place, those placed above it being Stirling Stent (a Silver Medal variety of last year), Barbara (First-class Certificate this year), and Melba. Red Star, which gained an Award of Merit this year, is the best scarlet flower. In stripes and flakes, Loyalty (blue flake), W. R. Beaver (chocolate flake), and the charming Mrs. W. J. Unwin (salmon flake) are considered best.

Many well-known and well-tried varieties remain in their old positions, notably Etta Dyke at the top of the whites and Clara Curtis at the top of the creams. The list will be helpful to growers all over the world. The inexperienced have only to decide what colours they would like to grow, and choose from the list before them the best varieties in the sections which they fancy.

Eugenics.

The University of London is issuing through the Chancellor, Lord Rosebery, and the members of the Galton Laboratory Committee, an appeal for £15,000, in order to provide a building which will serve as a laboratory for the study of eugenics. It will be remembered that Sir Francis Galton left a considerable sum of money—some £45,000—for the endowment of a professorship in eugenics and for the maintenance of a laboratory. According to the wishes of Sir Francis, the professorship has been offered to Mr. Karl Pearson, who finds, however, that the present laboratory accommodation at University College is inadequate. A site is available at Gower Street, and it is estimated that £15,000 will suffice to provide for the erection of laboratory buildings. It cannot be doubted that this sum will be immediately forthcoming, for no science is more worthy of support than that which seeks to discover the means whereby "the nation shall be, in every sense of the term, well bred, free as far as possible from inherited defects, and retaining the largest possible proportion of ancestral merits."

The appeal will come with particular force to horticulturists, who know better than anyone else that these aspirations are capable of realisation with respect to cultivated plants, and will, therefore, not forgo the hope that what they are accomplishing with respect to the simpler organisms with which they are concerned, may prove possible of accomplishment in the case of human beings and societies. Though genetics and eugenics are, in great measure, identical terms, it is well that both terms should be employed, for though both seek to discover what may be called the laws of breeding, eugenics must occupy itself not only with the problems of producing the best individuals, but also with the

multifarious questions which concern not only the individual, but also the complex society composed of multitudes of individuals. As a consequence of this need for investigation of the social as well as the individual aspect of human affairs, and also because of the obvious difficulties of applying the direct experimental methods adopted by students of genetics with respect to plants and animals, the methods of eugenics must differ widely from those of genetics. Thus, though both strive toward the same goal, the routes which must be followed are different. That pursued by eugenics must be far more tortuous, progress must be vastly more tedious, and for a long time we can hope for little more than the assembling and dissemination of authoritative data with respect to the causes that are at work contributing to or detracting from the health and vigour of the nation.

It is a great step forward to recognise, as humanity has now recognised, that its destinies are not altogether beyond its own control, and this indeed is the object of eugenics, to control as far as may be the destinies of mankind. It is to be hoped that the appeal of the University will meet with a prompt response, though it is surely a somewhat pitiable reflection that what should be our greatest university is compelled by poverty to go begging for such a sum as this and for such a purpose.

ROYAL HORTICULTURAL SOCIETY. The next meeting of the Committee of the Royal Horticultural Society will take place on Tuesday, the 27th inst. At this meeting a paper on "Origin and Structure of Flowering Plants in Dry Situations" will be delivered by Rev. Prof. G. HENSLOW.

INTERNATIONAL HORTICULTURAL EXHIBITION, 1912. A meeting was held at the Hotel Windsor, Victoria Street, on the 10th inst., for the purpose of electing a committee for the County of Surrey to help in promoting the interests of the exhibition. Those present included Sir TREVOR LAWRENCE, Bart., President of the Royal Horticultural Society, Sir ALBERT ROBERT, a member of the Board of Directors charged with the management of the exhibition, Messrs. F. A. WELLESLEY, E. G. MOCATTA, W. A. BILNEY, A. HARTMAN, T. WANT, LEOPOLD SALOMON, J. CHEAL, J. GOATLEY, J. COLLINS, M. MILLS, R. B. LEACH, G. CARPENTER, J. SUMMERS, W. P. BOUND, A. SMITH, THOMAS STEVENSON, Hon. Secretary, and others. Sir TREVOR LAWRENCE, who presided, and was subsequently elected President of the committee, made a very interesting speech on the work which was being done in all quarters on behalf of the exhibition. He moved a resolution pledging the committee to do its utmost to forward this work.

FLOWERS AND FRUITS IN SEASON.—Fruits of *Kelreuteria paniculata* and *Periploca græca* have been forwarded by Mr. A. HILLMAN, The Nurseries, Hailsham, who states that he has grown *Periploca græca* for upwards of 30 years, and this is the first time he has known the plant to fruit. An illustration of the fruits of *Kelreuteria* was given in *Gardeners' Chronicle*, November 5, 1887, p. 561, fig. iii. It will be remembered that the summer of 1887 was a very hot, dry one, and, like this season, many plants fruited which seldom ripen fruits in this country. The fruit of *Kelreuteria* is a membranous capsule, opening by three valves to liberate the seed. A box of *Peristemon* has been

forwarded by Messrs. JOHN FORBES, LTD., Hawick, representing varieties of their excellent strain of this useful border flower. Messrs. STUART LOW & Co. send us flowers of Carnation "Lady Abington," which they describe as one of the most perfect all-round varieties in cultivation. It is salmon-rose in colour, deeper in shade than the variety Mrs. Leopold de Rothschild. It possesses a real clove scent, and the flowers are produced freely in winter.

THE RECENT FRUIT SHOW.—When opened that in the section for market-garden produce a Gold Medal was awarded to Mr. R. A. WATSON, Faversham, for a collection of 20 baskets of cooking and dessert Apples. Mr. A. E. MASON, Hampton, was awarded the 1st prize in the class for 12 baskets of Apples, and G. HANBURY, Esq., Blythwood, Maidenhead (gr. Mr. Branson), a 3rd prize in the class for two bunches of Black Alicante Grapes. In the single-dish competitions, R. SAUBER, Esq., Aylesford (gr. Mr. Edward King), was awarded 1st prizes in Class 67 for Apple Ross Nonpareil, and Class 133 for Pear Pitmaston Duchess, and 2nd prize in Class 61 for Apple James Grieve.

CUCUMBERS FROM SOUTH AFRICA.—An attempt to send Cucumbers from South Africa to this country last winter resulted in failure. Forty-five cases were sent from Durban per R.M.S. "Briton," the Cucumbers being packed six to eight in a case, in single layers of wood-wool, and carried in the steward's cool chamber. When the cases arrived in Covent Garden there was not a single sound Cucumber amongst them, which bears out the experience of market men that it is very much more difficult to retard vegetables in cool chambers than fruit.

A NEW HYBRID CALCEOLARIA. Mr. F. BROW, writing in *Le Jardin* (September 20, 1911), describes a new hybrid Calceolaria, which is named *Gloriosa*. It resembles, in some respects, the English type of hybrid Calceolarias, which is generally characterised by an almost round, small, and finely-striped or punctate flower, as opposed to the flat, large, and boldly-striped flower of the French type. *Gloriosa* has the globular form of flower characteristic of the English type, but the flowers are much larger. It is, moreover, almost unicoloured. The new type occurs in a wide range of colours, white, cream, yellow-cream, yellow, sulphur-yellow, canary, orange, rose, and carmine. It secured, in May of last year, for Messrs. VILMORIN, ANDRIEU & Co., a Certificate of Merit from the Société Nationale d'Horticulture de France. Though it was then fixed, it was not put into commerce till it had undergone further tests, but it will be obtainable in commerce in the spring of next year.

"NEW ZEALAND PLANTS AND THEIR STORY" is the title of a charming educational book by Dr. L. COCKAYNE. It consists of a series of chapters in popular language, and is admirably illustrated by photographs of the author's own production. In designating it as educational, we do not mean in the narrow sense of juvenile education. Even grown-up botanists will find much of interest, and much, maybe, that is new to them. It is full of the right sort of botany to teach children and persons who are not aiming at becoming professional botanists, as it is explanatory of objects and phenomena commonly within range of observation in the country for which the book is intended. It is published under the auspices of the New Zealand Department of Education. We do not know of any one book treating of the British flora in an equally entertaining and instructive manner.

HORTICULTURISTS AT A CIVIC BANQUET.—

The annual Oyster Feast of the ancient borough of Colchester, which took place on the 12th inst., was invested with unusual interest from a gardening point of view, for the 300 guests included many who are well known in the world of horticulture, and especially rosarians. These were invited by Mr. FRANK CANT, head of the firm of FRANK CANT & Co., who, as Mayor of the town, presided over the proceedings. The president (Rev. J. H. PEMBERTON), secretary (Mr. EDWARD MAWLEY), and several other officials of the National Rose Society were present, and the guests also included Sir ALBERT KAYE ROLLIT, president of the National Chrysanthemum Society; Sir JEREMIAH COLMAN, Bart.; Councillor WALLACE, of Messrs. R. WALLACE & Co., Messrs. ARTHUR CANT, WALTER CANT, F. SYDNEY CANT, CLIFFORD CANT, R. F. FELTON, J. GREEN, GEORGE GORDON, H. B. MAY, Rev. F. PAGE ROBERTS, S. MORTIMER, W. D. PRIOR and J. HUDSON. The feast, which marks the approaching termination of the Mayor's year of office, was held in the Town Hall. The city's connection with the oyster industry dates from the time of RICHARD I., who conferred a charter on the burgesses, granting them the right to the fishery in the Colne from North Bridge in the borough to West Ness, at the entrance to the Colne Estuary. Many thousands of pounds have been received by the Town Council from the profits of the fishery. The tables at the feast were decorated with Roses and trophies won at horticultural shows by Messrs. F. CANT & Co., D. PRIOR & SON, R. WALLACE & Co. and Mr. O. G. ORPEN. Responding to the toast of "Horticulture and Science," proposed by Mr. L. WORTHING EVANS, Sir JEREMIAH COLMAN said there had never been a time when the advancement of horticulture had made more phenomenal strides than at the present. The LORD MAYOR of London proposed the health of Alderman CANT amid a scene of great enthusiasm. The following extract is taken from the local paper:—"Mr. CANT has had a most successful year of office. Alderman CANT is a native of Colchester, and, moreover, was born on Corporation property, the Severalls estate. He is a member of a family which has been honourably known in the borough for very many generations, and his great success as a Rose grower—an industry which has done so much to make the fair name of Colchester known throughout the world—is well known. His Worship is a man of keen business ability and a thorough sportsman; and his great geniality on all occasions has won for him a very wide popularity. For many years he has taken an active part in the public life of the borough, and until a few months ago was a member of the Town Council for the North Ward. In November last he was again returned for the North Ward, but on the decease, a short time afterwards, of Alderman E. J. SANDERS, a gentleman who had served the town as Mayor on three occasions, the members of the Council unanimously elected his Worship to the vacancy on the Aldermanic Bench."

LETTER FROM CHINA.—Messrs. BEES LTD. have handed to us the following interesting letter from their collector, Mr. F. KINGDOM WARD, Batang, Sze-chuan, W. China, dated August 5, 1911:—"A curious circumstance brought me up here. On returning to A-tun-tsi from camp on Pei-ma-shan I found a pessimistic message from the French priest at Tsw-kow, the translation of which was:—'The English are in Lhasa; the Chinese army has capitulated. A British officer went in from Ya-ka-o on secret service. The Chinese are exasperated and swear to exterminate the English. I fear you will be

killed before the end. You must leave A-tun-tsi at once.' The cause was incredible, but the result might not be. To return south might be to ruin my work for nothing; to sit still and passively await whatever might happen is against all my principles; I therefore did the obvious thing and came up here for news. There does not seem to be a vestige of truth in the extraordinary story, which is probably a garbled account of the China-Tibetan fighting at Bomed, and the 'British invasion (peaceful) of Mekong.' We wired to Cheng-tu, but no answer has come through, Chinese electricity being incredibly slow. I got two more Primulas, a Lily, a Potentilla and a few other good things. Am starting for Garthek to-morrow, and intend to spend a few days on those mountains before returning to A-tun-tsi. I have to return to Doker-la and the Salwen yet to get half-a-dozen good things, but it will be a difficult task. However, I intend to go, even if I have to disguise myself as a Tibetan. My best plants are now so widely scattered that I require a flying machine to finish up the work satisfactorily. I found a good blue Gentian on Pei-ma-shan, rather like *G. acialis* in size, colour and habit. I got the common Meconopsis, of course, and added three or possibly only two more species, all blue (1) an Oxford blue sp. with white anthers and having entire leaves, the flowers on rather long pedicels (*M. aculeata*, the Kashmir Poppy?); (2) an Oxford blue sp. with prickly pinnatifid leaves and the flowers on short pedicels—these two species are distinct enough in their extreme forms, but show transitions, average altitude 14,000-15,000 feet; (3) a Cambridge blue sp. with golden anthers, not occurring below 16,000 feet, and almost the highest Phanerogam in these regions. I think this must be a little discovery of my own. All the blue ones are much finer in colour than the jaundiced-looking one (*a species previously collected*, Bees), though the latter has the habit. You might be able to get some valuable hybrids from these. I hope so, anyhow, for I have got very little to show for the country I have covered during the season—a dozen or fifteen Primulas and a few other things, exclusive of Rubi and Rhododendrons, of course. The Yangtze Mekong is not as rich as the Salwen-Mekong, but it did not seem advisable to change my centre then. I shall be satisfied if I contrive to get the six first-class things I saw on the latter, which certainly do not occur on the former. I have had a trying task to make my men understand the work, and have been a little unfortunate in some respects. One of them is always getting a stomach-ache or something, and my Tibetan takes a jaunt home, gets across the Mekong, and waits for a flood to come along so that he cannot get back. Of course, they will know the work by the end of the season and be useful next year, but, as it is, I have to superintend them all the time. I am sending by post specimens of a scarlet Primula, but hardly expect they will survive. However, I shall probably be able to collect seed of this species."

PLUM RUST.—An account of some recent investigations on this disease by Mr. F. T. BROOKS, of Cambridge, appears in the current number of the *New Phytologist*. He has shown that the fungus causing this disease is heteroecious in this country, i.e., lives on two different hosts at different stages in its life-history, the alternate host being *Anemone coronaria*. When spores from *Aecidium punctatum* occurring on *Anemone coronaria* last spring were applied to the leaves of a young Victoria Plum tree the rust appeared in almost every case, thus showing that the *Aecidium* on *Anemone* is really a stage in the life-history of Plum Rust (*Puccinia pruni*). During the last few years there have been severe epidemics of

Plum rust in fruit-growing districts, the attack in places being so severe as to cause premature defoliation of the trees. Hitherto there has been doubt as to the manner in which the fungus survives the winter in this country. Two kinds of spores are produced on Plum leaves, uredospores and teleutospores. The former are the first to be produced and serve to propagate the rust rapidly during the summer. Bearing in mind other rust fungi these uredospores may possibly survive the winter and give rise to the rust again the following summer. It is, however, as yet uncertain whether this is a frequent means of propagation from season to season. Indeed, if re-infection the following year were due only to uredospores one would rather expect Plum rust to develop soon after the foliage had appeared, whereas this rust is frequently not in evidence until the summer season is well advanced. Experimental proof is lacking that the teleutospores or resting spores can re-infect Plum leaves and such a result is unlikely, for the primary function of these spores is to infect plants of *Anemone coronaria*. Brooks' experiments show that there is another means by which the fungus can survive the winter and thereby cause a recurrence of the rust. *Anemone coronaria* is a plant frequently found in gardens, and the mycelium of *Aecidium punctatum* is perennial in its tissues. Thus a plant once affected with this fungus gives rise to crops of aecidiospores year after year so that a few plants affected by the *Aecidium* are sufficient to account for the recurrence of the disease. After the first crop of uredospores of the season has been produced on Plum leaves the fungus may spread rapidly because successive crops of these spores may be formed about every fortnight under favourable conditions. Plants of the *Anemone* affected by the fungus have more fleshy leaves than have healthy plants, and diseased plants very rarely flower. It is obvious that the eradication of plants of *Anemone coronaria* affected by the *Aecidium* will be of assistance in the control of this very common rust.

AMERICAN "GOOSEBERRIES."—The introduction to *Seeds and Plants Imported*, Bulletin No. 205, Bureau of Plant Industry, U.S.A., contains a reference to the attempts which are being made to remedy the deficiency of Gooseberries in America by raising hybrids which shall be—unlike the Gooseberry proper—capable of resisting mildew. With the object of finding a substitute for the large-fruited English Gooseberry, Dr. W. VAN FLEET has raised hybrids between *Ribes missouriense*, R. cynosbati and R. rotundifolium, and the tests which have been applied indicate that among the hybrids are some which possess in a high degree the power of resisting Gooseberry-mildew.

THE FRUITING OF THE POMEGRANATE.—We may supplement the remarks which have already appeared in these pages respecting the fruiting of the Pomegranate this season by the following information sent us by Mr. GILBERT, late head gardener at Charlton House, Kent. Our correspondent states that a plant growing in bush form against a south wall in his garden has been cultivated in this position for 50 years, but it has never fruited until this year. During August and September the plant was literally covered with flowers and one fruit ripened.

HIGH PRICE FOR CABBAGES.—We are informed that Mr. ROBT. NEWMAN, at a sale by auction of growing crops, held recently at Harlington, Middlesex, sold a crop of Christmas Cabbage at the record price of £41 per acre.

PUBLICATIONS RECEIVED.—*Vine-Growing in England*, by H. M. Tod. (London: Chatto & Windus.) Price 1s.—*The Journal of the Board of Agriculture*. October. (London: Board of Agriculture.) Price 4d.

CYPRIPEDIUM LUCIFER.

OUR illustration (fig. 131) represents this handsome Cypripedium, for which Lieut. Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), was awarded a First-class Certificate at the Royal Horticultural Society's meeting held on the 10th inst. It gives a fresh proof of the benefit to be derived by using the finest varieties obtainable for crossing. In the composition of *C. Lucifer* (Niobe "Westonbirt" variety \times Euryades) the best forms of *C. Fairrieanum* and *C. Spicerianum magnificum* were used, producing *C. Niobe* "Westonbirt" variety; and of *C. Boxallii* and *C. Leeannum* as parents of *C. Hera Euryades*. In its general aspect *C. Lucifer* shows the influence of *C. Niobe* most. In shape and substance it is one of the best of its class. The dorsal sepal is white, heavily tinged and veined with rose-purple; the petals and lip are darkly coloured with purplish brown, the primrose-yellow ground colour showing through on the margins and lighter-coloured parts.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

ORIGIN OF THE CULTIVATED FIG AND THE CAPRIFIG.—Sir William Thistelton-Dyer has kindly called the writer's attention to a contradictory statement in the summary of Dr. Tschirch's investigations of this subject at p. 267. It is in relation to the seedling offspring of the female cultivated Fig, which is there described as "never Caprifig, never the genuine wild Fig." The last clause is incorrect, and arose from a misinterpretation of the original German. What Dr. Tschirch says is: "Theophrastus was only wrong in asserting that both the wild Fig and the Caprifig were so raised." Briefly stated, Dr. Tschirch's conception of the relations of the cultivated Fig, Caprifig, and the wild Fig is that one and two are the issue of the third; the first being purely female and the second male; and they can only be propagated true by cuttings or grafting. The fertilised seeds of the cultivated Fig may now rise to new varieties, but are not true to the wild Fig, but never to the Caprifig. Dr. Tschirch is further of the opinion that both cultivated Fig and Caprifig were introduced into Italy from the East. As bearing on this subject, reference may be made to the description and figures of the wild Fig in the late Dr. Aitchison's paper on the "Botany of the Afghan Delimitation Commission," in the *Transactions of the Linnean Society*, second series, *Botany*, vol. iii., p. 109, t. 46. W. B. H.

THE RECENT FRUIT SHOW.—A visitor to the show, and a capable critic asked me whether the markings seen on many of the larger and higher-coloured Apples, produced by the netting that is used to suspend them whilst on the trees, ought not to be made a reason for disqualification. The disfigurement is seen only on some of the highly-coloured fruits, hence it is clear that the finest of Apples can be grown without the aid of netting. If it be a fault to wipe off the bloom, any artificial markings should be a fault also. It was interesting to note, and it shows how possible it may be for judges to overlook stipulations in the schedule, that now Blenheim Pippin has been removed entirely from the list of cooking Apples, and is found only in the dessert list, yet in the class for "Any other cooking variety," Blenheim Pippin was regarded as eligible for competition, and it received a prize. That again was criticised. It was also asked whether, in judging the Blenheim Pippin dessert class, in which were small and large fruits, the judges acted on the condition that dessert fruits should be capable of being passed through a 3-inch ring. No such condition was enforced; but the prizes were given for the fruits which, in size and finish, accorded the most closely with what are held to be dessert requirements. Although there were many new competitors this year, yet it seems as if the prizes in the open classes fell into too few hands. In the long array of single-dish classes, just three or four names constantly cropped up. That may be unavoid-

able, but it would be better if the open classes were fewer, and more of both treble, double, and single dishes of both Apples and Pears, allotted to the respective county groups, as in such cases new men must come to the front. It is a question also whether the huge collections set up by traders are quite as useful as they are thought to be. If each firm were invited to set up respectively 60 varieties in one class, 40 varieties in another, and 20 in a third, specifying half cooking and half dessert varieties, we should then see in each case only the very best samples and varieties, and the general public would get from those collections valuable lessons. At present, intending purchasers are overwhelmed with the numerous varieties staged, many of them, perhaps, rarely planted by anyone. The superb yet very restricted collections set up by the market growers were far more valuable, especially as competitors largely repeated the best varieties. It would add much to the interest of the show if there were a few classes for fruits obtained from trees cultivated in

SEEDLING APPLES. The raising of seedling fruits has probably been carried out from prehistoric times, but in the early days of last century the work of Knight in England, and Van Mons and others on the Continent, gave an immense impetus to the production of new varieties. In England, the great popularity of the Apple, and the growing markets which modern industrialism has opened up, have led to a definite attempt to raise new varieties which should possess a higher standard of fruitfulness and quality. Notwithstanding the large amount of evidence which had been thus furnished, the question, "Do Apples come true from seed, or do they 'revert' to the Crab?" remains as unanswered in the twentieth century as it was in the eighteenth. The general opinion of the present day would probably incline to the reversion theory, and the reason for this is not difficult to conceive. If a number of Apple seedlings are examined in a young state, some small proportion will show the bold foliage and wood which are nearly always correlated with fruit of good size. The



FIG. 131.—CYPRIPEDIUM LUCIFER.

(From a cross between *C. Niobe* "Westonbirt variety" and *C. Hera Euryades*.)

grass orchards, and similar classes for garden-grown fruits, which are so often the products of very high seedling. A.

THE LATE WILLIAM EARLEY.—I first became acquainted with Mr. Earley in connection with the International Horticultural Exhibition of 1886. At that exhibition he contributed a "Paper" to the Congress, and exhibited a patent tree guard. In 1886, and for some years afterwards, he was gardener to Felix Pryor, Esq., Digswell House, Welwyn. He was a most successful exhibitor of vegetables at the Royal Horticultural Society's shows at South Kensington. In writing the gardening matter for *Lloyd's Weekly News*, Mr. Earley succeeded the late George Glenny, of Fulham, who wrote so well on the "Properties of Florists' Flowers." In his reply to a correspondent as to a question asked regarding "Roses," Mr. Earley in the very last notes he wrote, after giving his correspondent some cultural advice, ended with this remark "Repeat question to us in the spring." Alas! the hand that wrote those words has written its last. J. B.

larger number, however, will show the growth associated with the "Crab," namely, a profusion of spines, wood of thin and tough character, and branches leaving the stem at more or less right angles, giving the plant a straggling appearance. The characters of leafage are well seen in every bed of so-called "free" stocks, that is, stocks raised from all kinds of Apple seeds, and not from genuine Crabs, and the small proportion of boldly-leaved plants has, no doubt, aided the formation of the opinion so generally held. There is, however, some evidence that this Crab-like form may be regarded as a juvenile stage of growth rather than a permanent character of the tree. The writer has under observation a seedling which shows this character in an extreme form, and might, when leafless, have been taken at a distance for a plant of *Crataegus oxyacantha* in its early years. It bears, however, this year fruits of a medium size, and will, no doubt, as is generally the case, lose its spiny growth with age, and more rapidly when propagated by buds or grafts. Many new varieties have borne an unpromising appearance when young, and not only is the growth of the tree

subject to a gradual change, but the fruits increase in size with age. The Pears "Passe Crasane" and also Marie Benoist were at first very small fruits, but increased with years, until they reached their present respectable proportions. (See Carrière's *Semis à Mûre en Fruit des arbres Fruitières*.) It is likely, therefore, that this peculiar habit is rightly to be considered a juvenile stage, and no evidence as to reversion to Crabs can safely be deduced from seedlings until they have fruited. The evidence that Apples may come true to seed is, so far, very slight, but it is worth consideration.

The great popularity of the "Golden Pippin" in the early part of the 19th century led to many seedlings being raised from this variety, such as the "New," "Cluster," "Elford," "Franklins," "Hughes," "Camberwell," and others. There is a resemblance between all these varieties, and, in some cases, a striking approximation to identity with the parent is reached. A more recent instance is the production of "Charles Ross" ("Cox's Orange Pippin" × "Peasgood's Nonesuch"): this variety so closely approaches in its fruit the latter parent that the difference is often almost imperceptible. Certain small differences of habit, shape, and season do, however, exist. Better evidence, however, is provided by one of my own seedlings which has fruited this year. Seeds were taken from an Apple, "Lord Derby," on which the flowers were not protected, and were, therefore, liable to chance cross fertilisation. Three plants were raised, and No. 1 has produced this year small, round fruits, with red stripes, on a pale-yellow ground. No. 3 bears no fruit. No. 2 bears fruits which are practically identical with Lord Derby, and the wood and leaves are also much like this variety as to be indistinguishable. The details of the flower remain to be determined. These cases are evidence at least that a very near approach to identity to parents may—and does—occur in the reproduction of cultivated Apples, and that the evidence of so-called "reversion" to "Crabs" needs to be carefully tested. Another seedling is of some interest, as it may throw some light on the origin of the Apple "Cox's Orange Pippin." This well-known fruit was raised by a Mr. Cox, a builder, at Langley, about 1830. It was generally said that two pips from one fruit produced "Cox's Orange Pippin" and "Cox's Pomona." In 1900, however, Mr. Chas. Dennis stated (*Gardeners' Chronicle*, 1900, p. 534) that he had heard from Mr. Chas. Turner, who put the first named into commerce, that one of the two plants died, and only the Cox's Orange survived. The seedling which now fruits for the first time in our nursery was raised, like the "Lord Derby," from a seed taken from a fruit of "Cox's Orange," the flower of which was unprotected from chance cross-fertilisation. The fruit and growth reproduce almost exactly that of "Cox's Pomona." *Edward A. Bingham.*

BELLADONNA LILY.—The hot weather of the past summer has suited this plant. We have had several hundred spikes of bloom, which have been very valuable during the dry season. Spikes that were not cut have produced a quantity of seed, and I shall be pleased to distribute this to your readers on payment of the postage. We have three varieties. *C. Capp, Linton Old Abbey Gardens, Scarborough.*

PRIMULA CAPITATA.—One may go into scores of gardens and yet never see this Primula, which is one of the loveliest of Himalayan Primroses. Everyone who sees it is attracted by its extraordinary beauty. I suppose its scarcity is owing to its tendency to biennial habit, or, at least, to flowering itself to death. It differs from other Primroses in its season of bloom. Beginning in August, it continues sending up its clustered head of richest violet-purple until the first severe frost. The flower-stems and leaf-backs are densely covered with white meal, and it has a delicious odour of Jargonelle. It is now (October 14) in the height of beauty, and although usually reckoned a moisture-loving species, it has withstood the prolonged drought of this season in a south-west border, the soil being loam, with an addition of peat and sand. In general figure and habit it follows the spring-flowering *P. denticulata*, but it is less robust and more delicate in all its parts. It is very easily raised from seed in a cold frame. *Herbert Maxwell, Abingdon.*

LARGE PEACHES.—I should be glad if any readers would send me records of the largest Peaches and other fruits, especially Figs, grown in the open during this unusual summer. The name of the variety should, if known, be stated. *E. G. Aldridge, F.G.S., 2, Hills View, Barnstable.*

RIPENING OF WOOD IN FRUIT TREES.—Your correspondent, *Southern Grower*, on page 251, in summing up the advantages of the recent summer, places as last, but not least, "the thorough ripening of the young wood and fruit buds of all kinds as a good augury for next year." *Southern Grower* is always interesting and instructive, and I am his debtor for much useful information, so that I hesitate to question such a generally-accepted theory; but I have come to the conclusion that ripened wood—necessary as I admit it to be—is not so much a factor in the production of a good fruit or flower crop as a sufficient rainfall. The summer of 1910 was anything but favourable to the production of ripened wood; yet 1911 has produced such a bumper crop in this district as "gives one to think." Never were flowering shrubs more floriferous, yet, on the assumption that the season of 1910 was unsuited to the proper ripening of the wood, such ought not to be the case. I have been told (but have no data by me to verify) that, although we had a succession of damp summers, the rainfall was under the average. May it not be that nature, restoring the balance in 1910, had more to do with the heavy yield of fruit and flower in 1911 than is due to the ripened wood? *C. J. Bailey, Cranbrook, Kent.*

DOLICHODIERA TUBIFLORA.—I can endorse all that Mr. Lynch says in praise of this plant on p. 254, and would add that it is very easily grown, and can be had in flower at Christmas or any other period of the year. I am very much surprised that it is so seldom seen. May I appeal to the authorities and experts in the naming of plants to retain the generic name of *Achimenes* as our late friend Nicholson has it in the Supplement to the *Dictionary of Gardening*, edition 1900, p. 8, instead of using *Dolichodiera*? Words such as this are not easily remembered for spelling correctly by beginners, and too often lead to rechristening with so-called English names, which are in many instances a source of confusion. *W. H. Diers, Belvoir Castle Gardens, Grant-ham.*

HYDROCYANIC ACID GAS AS A FUMIGANT.—May I be allowed to point out to your readers the great value of hydrocyanic acid gas as a fumigant? I have under my charge two plant stores which for many years past have been infested with mealy bug. Many methods for destroying the bug have been tried, including paraffin emulsion, with varying success, but all have failed, for, after the most thorough cleansing, bug was always to be found. I first fumigated a house containing *Codiaeums* (Crotons), *Caladiums*, *Panax*, *Begonias*, *Dracenas*, *Gesneras*, and other stove plants, with *Stephanotis* covering a portion of the roof and *Adiantum* planted in rockwork beneath the stage. This was in August, when it was impossible to reduce the temperature of the house below 68°. I used a patent machine now on the market, which eliminates all possible danger to the operator. I employed 1½ ounce of sodium cyanide, 2½ ounces of sulphuric acid, and 5 ounces of water to every 1,000 cubic feet of interior space. The water was first poured into a bowl and the acid mixed with it. The fluid immediately became very hot, and it was allowed to cool; then the cyanide was emptied into it, by means of a string passed through the keyhole of the door. The gas generated in 40 or 50 minutes, when the ventilators were opened from the outside, and care taken to exclude all persons from the house for at least a quarter of an hour. After this treatment the mealy bug was killed, and although some young ones appeared in the course of a few days, this operation repeated in two successive weeks completely eradicated the pest. On examination I found that none of the plants had suffered the slightest injury, not even the young fronds of *Adiantum*, which are easily injured by fumes of nicotine preparations. The other house contained *Palms*, *Ferns*, and *Cypripediums* with *Stephanotis* trained on the roof, and it was treated in the same way, with the same gratifying result. *E. R. Jones, Abney Gardens, Banbury.*

GALE ON THE EAST COAST.—The recent gale experienced in this district was very harmful to vegetation. The wind, which blew from the north, raged throughout Saturday and Sunday, September 30 and October 1, at times attaining to a hurricane. It not only destroyed many plants by its violence, but had a serious effect on practically all vegetation with which it came in contact. Many trees were blown down, others lost large limbs, and still others were partially uprooted in ground made soft by the heavy rain. The swaying motion of some trees was so great that the main stem, especially in the case of bush orchard trees, worked themselves loose in the soft soil. Deciduous trees were, in many cases, partially defoliated. Evergreens did not escape injury, *Portugal Laurels*, *Privets*, and *Escallonia* being badly damaged where the wind reached them. The severity of the gale may be gauged somewhat by the fact that such hardy plants as *Holly*, *Ivy*, and *Sea-Buckthorn* (*Hippophae rhamnoides*) were injured; the *Sea-Buckthorn* is used extensively here as a wind break. The greater part of the *Apple* and *Pear* crops were still ungathered, and the loss in this direction is very great. Pergolas clothed with *Roses*, *Laburnums*, *Clematis*, and similar subjects present a very singular appearance, as the foliage on the side exposed to the wind is shrivelled, while that on the lee side is still green. The summer bedding was quite spoiled. Many half hardy plants still out-of-doors, such as *Lippia*, *Hydrangea*, and *Fuchsia*, were also badly injured. The herbaceous borders are now devoid of flowers. The kitchen quarters fared as badly as the other sections of the garden. *French* and *Runner Beans* in bearing were, for the most part, killed, whilst *Brussels Sprouts* were almost torn out of the ground. *H. W. Abbiss, The Pleasance Gardens, Overstrand, Cromer.*

DR. HOGG'S "FRUIT MANUAL." (see p. 272).—It is not a new edition of this excellent book that is needed, as it is already far more bulky than is desirable, but a supplement to include the newer fruits, up-to-date, omitting the many worthless varieties and those no longer in cultivation, so many of which are found in Hogg's *Manual*. Whether anyone has kept a close record, descriptive and historical, of all the fruits that have been certificated or put into commerce since Dr. Hogg's death, is doubtful; but probably the Council of the Royal Horticultural Society, assisted by a small consultative committee, could furnish a work of the kind at a comparatively moderate cost. It is waste of space to particularise worthless varieties. I believe the matter has been before the R.H.S. Council for some time, but so far the proposals have not been entertained. *A. D.*

SCOTLAND.

THE HEATING OF THE WAVERLEY MARKET, EDINBURGH.

EXHIBITORS at the Chrysanthemum Show of the Scottish Horticultural Association in the Waverley Market, Edinburgh, will be glad to learn that the work of heating the market is at length definitely arranged. It will be carried out at a cost of £2,754 by Messrs. Mackenzie & Moncrieff, Edinburgh. Oil fuel and not coal will be employed, as the oil is expected to be more convenient and prevent smoke. The work is not to be undertaken until December.

VALUATION OF PUBLIC PARKS.

At the annual valuation court for the city of Dundee recently an attempt was made by the Assessor and the Parish Council of Dundee to overturn the former valuation of £1 each on the nine public parks, fixed in accordance with a decision of the Court of Session in 1909, a decision which has been generally acted on since that time. It was contended that a later judgment respecting museums, picture galleries, &c., should now be applied to public parks, and that their total values should be fixed at a comparatively high amount. The assessor put this at £938 and the Parish Council at £1,055. After considerable discussion, it was moved by Treasurer Soutar that each park be entered at the nominal value of £1. He held they must stand by the decision now obtaining. This was seconded by the Lord Provost and agreed to. *Correspondent.*

COLCHICUMS AT MADRESFIELD COURT.

THE accompanying illustration (fig. 132) shows one of a large number of natural gardening effects at Madresfield Court. The Colchicums are an exceptionally fine type of *C. speciosa maxima*, much deeper in colour than the ordinary type, of great substance, and the foot stalks are 10 inches to 12 inches in height.

The bulbs were planted about 10 years ago in large, irregular patches in the turf, in well-prepared holes about 9 inches square and as much deep. The holes were filled with a compost of friable loam, a little lime rubble, and bone dust. One bulb was planted in each hole, and there are now five or six bulbs in each, whilst their appearance seems to promise that they will increase and improve for years to come. As the bulbs become crowded a clump is taken up here and there, dividing them singly, and so the area is increased. At this time of year when the summer bedding has become stale and uninteresting, these lovely Colchicums, Cyclamen, Sternbergias, and the true autumn Crocuses produce most beautiful effects in the natural garden, springing up here and there in all their glory and freshness year by year.

SOCIETIES.

ROYAL HORTICULTURAL.

CONFERENCE OF AFFILIATED SOCIETIES.

OCTOBER 11.—As stated in these pages last week, the annual conference of the affiliated societies took place on the second day of the Fruit Show at the Royal Horticultural Society's Hall. The Rev. W. Wilks, M.A., presided during part of the proceedings, and Mr. James Douglas afterwards. A paper on "Errors in Flower Show Schedules" was read by Mr. Wilks, which should prove very profitable to those members representing exhibition societies. Friction often arises between exhibitors and committees of flower shows through incomplete definitions of the classes in the schedules. In one schedule a class was described as one for the "Best display of preserved fruits." Exhibitors might reasonably assume that any mode of preserving was admissible, but in this instance it was not so, for the committee really meant "Best display of bottled fruits," and jams and dried fruits other than bottled fruits were disqualified. Another error was cited in a class offered for the "best collection of fruit, six varieties. White and black Grapes allowed." Now it happened that the successful exhibitor staged two dishes of Peaches, distinct varieties, and the attention of the committee was called to this by an unsuccessful exhibitor, who contended that two dishes of Peaches should not be allowed in the class. Yet the schedule said six "varieties" not six "kinds," and although the committee in framing the class thoroughly understood amongst themselves that it should be six different "kinds" of fruit, yet they did not express themselves clearly when offering it to the exhibitor. In the classes for Sweet Peas the instructions are often too meagre, and unpleasantness has resulted from the judges awarding prizes to vases of Sweet Peas relieved with sprays of Asparagus. The addition of Asparagus or similar light foliage lends attraction to the vase, but if the class reads "for the best 18, 24, or 35 sprays of Sweet Peas" and mentions nothing about the use of any foliage, the sprays themselves should be staged and judged on their merits. These are only three defects in schedule-making, and no doubt the separate committees would gladly have rectified them had they given sufficient thought to the wording. Mr. Wilks mentioned others erring just as much in their separate classes, and emphasised the fact that in drawing up a schedule of prizes every committee should examine the wording from the quibbler's point of view.

Mr. James Douglas in taking up the chairman's duties asked Mr. Mark Webster, of the Beckenham Society, to introduce his subject "What should 'Union' mean?" Mr. Webster somewhat depreciated the value affiliated societies gain from the R.H.S., and suggesting that, amongst other things, there should be a circulating library for members of affiliated societies. To this proposal the chairman remarked that access to the R.H.S. library is always open if any member wishes to avail himself of it, and notice of this is printed in the book of arrangements issued by the R.H.S. Another point raised was the alleged absence of mutual fellowship existing between members of different societies when visiting each other, but this experience appeared not to be shared by other speakers who stated that they had been received with every welcome by other societies. Mr. Boshier, of the Croydon Society, remarked that, from his experience, he had found the fault, if any existed, must be laid at the door of the individual society and not the R.H.S. It

In the discussion following this suggestion, it was asked why should not the R.H.S. hold their two principal shows now held in London in different provincial centres, and Mr. Douglas, in reply, said that years ago when this was attempted the show was successful the first year at Ipswich, but the second attempt at Liverpool resulted in a loss to the R.H.S. of something like £1,100.

Time would not allow the reading of a letter from the Brewood Horticultural Society concerning queen wasps.

Scientific Committee.

OCTOBER 10.—Present: Mr. J. T. Bennett-Poë, M.A. (in the Chair); Messrs. E. M. Holmes, F.L.S., A. Worsley, W. Hales, W. C. Worsdell, J. O'Brien, and F. J. Chittenden (hon. sec.).

Variation in Elm.—Mr. W. C. WORSDELL drew attention to the variation which had occurred this year, both at Kew and at Cambridge, in the foliage of *Ulmus glabra*, Miller. At the base of many leaf-blades, from one to three extra small leaflets had developed on the petiole. These, when on the side of the leaf in which the blade is usually less well developed, appeared to be



FIG. 132.—GROUP OF COLCHICUMS IN MADRESFIELD COURT GARDENS.

was for societies to make suggestions, and the Council of the R.H.S. would give such suggestions consideration. A member of the Wimbledon Society complained that in the list of lecturers compiled by the R.H.S. for use at gardeners' meetings, some of the lecturers were incompetent on the subject forming their lecture, and he complained of the cost of an illustrated lecture supplied by the R.H.S. Mr. Douglas stated that the lecturers' names are contributed by the mutual societies themselves, who recommend the names as being authorities on the different subjects. The reduction in cost of illustrated lectures would be carefully considered by the Council of the R.H.S.

One other item on the agenda, introduced by Mr. Caute, of the Highgate Society, was a proposal for the formation of county shows, so that gardeners in each district may keep themselves up-to-date as to the newer productions of fruit, flowers, vegetables, &c., by holding a central show in each county. The meeting was in full sympathy with the movement, but it was thought that financial reasons would prevent the idea being carried out.

complementary growths, but in several of the leaves the blade was symmetrical. A second variation, of considerable frequency, was seen in the forking of the midribs of the leaves, sometimes to the base, so as to produce apparently two leaves at a node, sometimes less deeply. In some few cases also some of the leaves formed a racia.

Rudbeckia triloba, malformed.—Mr. WORSDELL also showed an inflorescence of *Rudbeckia triloba*, with foliage leaves developing from the apex, through the centre of the capitulum.

Menthol plant.—Mr. HOLMES showed a specimen of the true *Menthol* plant from his garden. The plant was derived from one growing in Berlin. It is a form of *Mentha arvensis* called piperascens, and is a native of Japan.

Fasciation in Chrysanthemum maximum.—Mr. J. R. JAMESON sent an example of a fasciated stem and inflorescence in this plant from Lymington. This species appears to be very subject to fasciation.

Onion bulb with lateral growths.—Mr. E. E. TURNER sent from Coggeshall, Essex, an Onion bulb having numerous greenish bulbils growing from around the base, so that the original bulb

was surrounded at its base by numerous out-growths. It may possibly have arisen from a second growth being developed after a check imposed by drought.

Cabbage with hairy leaves.—Mr. A. SIMMONDS sent from Mitcham, Surrey, a Cabbage leaf having hairs upon both surfaces, especially upon the veins. The wild form is often hairy, but hairiness appears to be very rare in the cultivated varieties.

Rotting of Narcissus bulbs.—Rev. J. JACOB sent some Narcissus bulbs which had been attacked by the fungus *Fusarium bulbigenum*. This was first described in *Grevillea*, vol. xvi., p. 49, but appears not to have been troublesome since.

Apples diseased.—Mr. ROGERS sent from Hexworthy some Apples with peculiar greenish depression on the surface, showing a well-marked, brown marginal line, which also limited the spots on the inner side, being there about $\frac{1}{2}$ in. below the surface. The trouble had, apparently, developed in the store, and had occurred in a large number of varieties. Mr. CHITTENDEN took them for further examination.

NORTH OF SCOTLAND HORTICULTURAL.

OCTOBER 14.—The inaugural meeting of the recently resuscitated North of Scotland Horticultural and Arboricultural Association was held in the Botanical Class-room, Aberdeen University, on this date. There was a very large attendance, over which Mr. Alexander Robson, of Messrs. W. Smith & Son, Nurserymen, Aberdeen, presided.

The chairman stated that it was now 17 years since meetings of the Association were allowed to lapse. He did not think, however, that those who decided to put the Society in abeyance contemplated that it would be for a period of 17 years. The Association had been resuscitated in a constitutional way by the old committee. No fewer than 165 persons had signified their adhesion to the Association. It was satisfactory that promises of support had been received from several of the professors and lecturers of Aberdeen University, including Dr. Trail, who would give the introductory lecture, his subject being "How to Obtain Improved Races of Cultivated Plants."

Mr. William Reid, interim secretary, submitted the syllabus of lectures for the winter's session. Mr. Mackinnon, Gardener to the Earl of Aberdeen at Haddo House, Aberdeenshire, was appointed president.

NATIONAL SWEET PEAS.

The information printed below relates to the awards made to novelties by the Floral Committee of the National Sweet Pea Society in the present year, and recommendations are made by the committee in respect to the arrangements for future trials.

AWARDS.

FIRST-CLASS CERTIFICATE TO—

Trial No. 119 (*Thomas Stevenson*, Dobbie's, sent by Messrs. Dobbie & Co., Edinburgh). The silver medal was awarded, provisionally, to this trial).

Trial No. 111 (*Barbara*, sent by Mr. Robert Holmes, Tuckwood Farm, Norwich; raised by Mr. H. A. Perkin, Reigate).

AWARD OF MERIT TO—

Trial No. 33 (*F. Seymour Davis*, sent by Mr. F. Seymour Davis, Farnham).

Trial No. 43 (*Mauve Queen*, sent by Messrs. Dobbie & Co., Edinburgh).

Trial No. 133 (*Red Star*, sent by Mr. A. Malcolm, Duns, Berwick).

Trial No. 211 (*May Campbell*, sent by Messrs. Dobbie & Co., Edinburgh).

Trial No. 212 (*Mrs. B. Gilbert*, sent by Messrs. Gilbert & Son, Dyke, Bourne).

RECOMMENDATIONS.

The Floral Committee strongly recommends—

(1) That 20 seeds be sent for each individual trial in 1912, 15 plants to be set out in a row 12 feet long.

(2) That raisers be notified if fewer than 15 germinate, and a request made for more seeds.

(3) That failing seeds, seedlings about 3 inches high be accepted to make up the number of plants.

(4) That on the first visit to the Trials in 1912, varieties be selected for voting upon at the subsequent visit; no voting to take place at the first visit.

(5) That a duplicate set of Trials be conducted in 1912, on heavy soil, at least 100 miles north of London; and, in the event of this recommendation being adopted, the Floral Committee pay one visit only to each set, point each stock, and make its awards on the results thus arrived at. Under these conditions a scale of points would be prepared prior to the first visit and all stocks obtaining a certain aggregate of points would be voted upon.

(6) That the raiser's description be furnished in the case of varieties which gain awards, and that such description be included in the proceedings of the Floral Committee.

(The General Committee approves the foregoing recommendations and will endeavour to give effect to them).

CLASSIFICATION OF SWEET PEAS.

The following is an up-to-date selection of varieties. The varieties in each Colour Class are placed in order of merit.

COLOUR.		MAROON RED.	
Mrs. Campbell	Red Chief		
Arthur Unwin			
Mrs. Andrew Ireland			
Colleen	MAUVE.		
	Queen of Norway		
Flora Norton Spencer	Tennant Spencer		
Mrs. G. Charles	Wendee Castle		
Lord Nelson	Helo-Paradise		
	ORANGE-PINK.		
	Edrom Beauty		
	Helen Grosvenor		
	Helen Lewis		
	ORANGE-SCARLET.		
	Thomas Stevenson		
	Edwin		
	PICOTEE EDGED.		
	(Cream Ground.)		
	Mrs. C. W. Breamore		
	Evelyn Hemus		
	PICOTEE EDGED.		
	(White Ground.)		
	Elsie Herbert		
	Marchioness of Tweeddale		
	Mrs. Townsend		
	PINK.		
	Elfrida Pearson		
	Hercules		
	Countess Spencer		
	ROSE.		
	Rosabelle		
	Marie Corelli		
	Marjorie Willis		
	SALMON SHADES.		
	Stirling Stent		
	Barbara		
	Earl Spencer		
	SCARLET.		
	Red Star		
	Scarlet Emperor		
	George Stark		
	STRIPED AND FLAKED.		
	(Purple and Blue.)		
	Lovely		
	Sulfragette		
	STRIPED AND FLAKED.		
	(Chocolate on Grey Ground.)		
	W. R. Beaver		
	Senator Spencer		
	STRIPED AND FLAKED.		
	(Red and Rose.)		
	Mrs. W. J. Unwin		
	America Spencer		
	Aurora Spencer		
	WHITE.		
	Etta Dyke		
	Nora Unwin		
	Dorothy Eckford		
	TOO-MUCH-ALIKE VARIETIES.		
	The following varieties have been bracketed as too much alike. "Not more than one of the bracketed varieties shall be shown on the same competitive stand at any exhibition of the National Sweet Pea Society." The names are placed in alphabetical order. For Order of Merit see "Classification of Sweet Peas."		
	BLUE.		
	Anglian Blue		
	Flora Norton Spencer		
	Kathleen McGowan		
	Shawondasee		
	Zephyr		
	BLUSH.		
	Bobby K.		
	Countess of Northbrook		
	Florence McGowan		
	Lady Evelyn Eyre		
	Mrs. Hardcastle		
	Princess Victoria		
	Blush Spencer		
	Lady Althorp		
	Mrs. T. G. Baker		
	Paradise Regained		
	Sankey Spencer		
	CARMINE.		
	E. J. Castle		
	George Herbert		
	John Ingram		
	Mrs. W. King		
	Paradise Carmine		
	Spencer Carmine		
	CREAM, BUFF AND IVORY.		
	(Grandiflora.)		
	Harold		
	James Grieve		
	Mrs. Collier		
	Mrs. A. Malcolm		
	Yellow Hammer		
	(Waved.)		
	Clara Curtis		
	Giant Cream Waved		
	Mrs. Miller		
	Paradise Cream		
	Primrose Paradise		
	Primrose Spencer		
	Princess Waved		
	Princess Juliana		
	Waved Cream (Malcolm's)		
	Paradise Beauty		
	Paradise Ivory		
	Queen		
	Sea Lion		
	Lady Knox		
	CREAM-PINK.		
	A. B. Bantock		
	Earl of Plymouth		
	Holstead Belle		
	Juliet		
	Mrs. Alice Ware		
	Mrs. Henry Bell		
	Mrs. Huch Jackson		
	Mrs. Routhahn		
	Mrs. S. S. Champion		
	Queen (Sutton's)		
	Queen Mary		
	Roman Rauni		
	Seashell		
	W. T. Hutchins		
	CREAM-PINK (Deep).		
	Anglian Pink		
	Born Under		
	Laura-Lure		
	Melba		
	Minnie Farnell		
	Miriam Beaver		
	Mrs. Gibbs Box		
	Mrs. R. Hallam		
	Susara Lee		
	Constance Oliver		
	Nell Gwynne		
	CRIMSON.		
	Dodwell F. Browne		
	G. C. Ward		
	King Alfonso		
	King Edward Spencer		
	Maud Holmes		
	Norumbria Monarch		
	Paradise Crimson		
	Rose Gilbert		
	Superscript Crimson		
	Superscript King Alfonso		
	The King		
	The Squire		
	LAVENDER.		
	Acta Ohn		
	Frank Unwin		
	Maori Belle		
	Masterson		
	Mrs. Chas. Foster		
	Mrs. E. Noakes		
	R. F. Felton		
	Florence Nightingale		
	Freida Unwin		
	Gladys Cole		
	Lavender George Herbert		
	Lavender Paradise		
	Lavender Spencer		
	LILAC OR PALE MAUVE.		
	Mauve Queen		
	Winsome		
	Mrs. R. H. Carrad		
	MAGENTA.		
	Menie Christie		
	MARBLED AND WATERED.		
	May Campbell		
	Helen Pierce		
	MAROON.		
	Nubian		
	Tom Bolton		
	Black Knight Spencer		
	MAROON PURPLE.		
	Arthur Green		
	Mrs. J. M. Gerhold		
	MARON.—(Continued).		
	Nubian		
	Ortho Spencer		
	Princess of Asturias		
	Silas Cole		
	Tom Bolton		
	MAUVE.		
	Amethyst		
	Edna Unwin		
	Helo-Paradise		
	Ela Townsend		
	Mrs. Walter Wright		
	Queen of Norway		
	Tennant Spencer		
	The Marquis		
	ORANGE-PINK.		
	Anglian Orange		
	Helen Grosvenor		
	Helen Lewis		
	Magpie Stark		
	Miss J. Brown		
	ORANGE-SCARLET.		
	Dazzler		
	Earl of Chester		
	Edna Unwin		
	Gordon Ankentell		
	Prince of Orange		
	Ruby (Alderley)		
	St. George		
	Thos. Stevenson		
	PICOTEE EDGED.		
	(Cream Ground.)		
	Evelyn Hemus		
	Mrs. C. W. Breamore		
	PICOTEE EDGED.		
	(White Ground.)		
	Dainty Spencer		
	Distinction		
	E. J. Deal		
	Elsie Herbert		
	Picotee		
	Winifred Deal		
	Eric Harvey		
	Marchioness of Tweeddale		
	Martha Washington		
	Paradise Apple Blossom		
	PINK.		
	Countess Spencer		
	Enchantress		
	Hercules		
	Overcome		
	Paradise		
	Pink Pearl		
	Thia		
	Marjorie Linzee		
	Minnie Toogood		
	Oliver Bolton		
	SALMON.		
	Barbara		
	Charlie Irving		
	Earl Spencer		
	Melba		
	Nancy Perkin		
	Stirling Stent		
	Thosie Jeffrey		
	Isabel		
	SCARLET.		
	George Stark		
	Premier		
	Queen Alexandra Spencer		
	Red Star		
	Scarlet Emperor		
	Scarlet Empress		
	Scarlet Monarch		
	Vermilion Brilliant		
	STRIPED AND FLAKED.		
	(Chocolate.)		
	President		
	Senator Spencer		
	W. R. Beaver		
	STRIPED AND FLAKED.		
	(Red and Rose.)		
	America Spencer		
	Edna Unwin		
	Maori Belle		
	Masterson		
	Mrs. Chas. Foster		
	Mrs. E. Noakes		
	R. F. Felton		
	Florence Nightingale		
	Freida Unwin		
	Gladys Cole		
	Lavender George Herbert		
	Lavender Paradise		
	Lavender Spencer		
	LILAC OR PALE MAUVE.		
	Mauve Queen		
	Winsome		
	Mrs. R. H. Carrad		
	MAGENTA.		
	Menie Christie		
	Mrs. Charles Mander		
	MAROON.		
	Anna Unwin		
	Black Knight Spencer		
	Douglas Unwin		
	Dusky Monarch		
	Maroon Paradise		
	May Gerhold		
	ETTA DYKE.		
	Etta Dyke		
	Nora Unwin		
	Dorothy Eckford		

* Indicates a grandiflora variety, all others are waved.

HORTICULTURAL CLUB.

LECTURE ON RHODODENDRONS.

OCTOBER 10.—This date was a busy one for horticulturists, for it was the opening day of the R.H.S. Fruit Show, whilst the county secretaries of the "International, 1912," assembled at Westminster at 3 p.m., and the members of the Horticultural Club dined together with the county secretaries at 6 p.m.

Following the dinner, Mr. C. P. Raffill, of the Royal Gardens, Kew, delivered an address on Rhododendrons, illustrated by a large number of lantern slides. Mr. Raffill gave a comprehensive account of the Rhododendron, and showed, from a first-hand knowledge, the great diversity of the members of the genus, giving pictures of some of the more notable plants in this country. He said that the number of species known is about 270, and the recent work of plant collectors in China had proved that country to be the headquarters of the genus, which was formerly located chiefly in the Himalayas. The members are widespread, and one of them, *R. lapponicum*, stretches across the northern part of America to Labrador through New England, and by way of Greenland to Europe and Northern Asia. In speaking of the garden Azalea, which is now included under Rhododendron, Mr. Raffill said the distinction was based on there being five stamens instead of 10, but as this distinction is still arbitrary, the two are now merged by systematists. Those known as Indian Azaleas are, curiously, natives of China and Japan, but they were received originally from India. They were grown by Chinese and Japanese gardeners long before they came into the hands of the Continental horticulturists, who have improved them beyond knowledge. The Ghent Azaleas have originated from *R. flavum* crossed with *R. calendulaceum*, *R. viscosum*, and *R. nudiflorum*, afterwards interbreeding the progeny, and then further crossing these with others, including *R. sinense*. The somewhat rare *R. vaseyi*, said Mr. Raffill, is of this class, with delightful pink, sweet-scented flowers. He recommended its cultivation wherever Rhododendrons are grown. The magnificence of the Rhododendron trees in the south-western counties, and especially in Cornwall and Glamorganshire, was shown by many lantern pictures.

The race of greenhouse Rhododendrons raised from Javan species was referred to, and a caution given not to grow them in a cool temperature. They require, said Mr. Raffill, a temperature in winter not lower than 50°, whilst in summer the best may be allowed to rise to 90° with advantage. In speaking of the most common Rhododendron, the lecturer referred to *R. latifolium*, and recommended the whole plant to be lifted and placed on its side, as in this way the branches may be readily bent to the ground. Laying may be done at any time of the year, but it is best performed in the spring and summer. Some interesting details were given regarding the properties and economic uses of Rhododendrons. Thus a decoction of the leaves of *R. chrysanthum* is employed in Siberia for the treatment of rheumatism. The leaves of several species are poisonous to cattle; in Sikkim sheep and goats die from browsing on *R. cinnabarinum*. Snuff is made from the dried leaves of *R. campanulatum*, whilst leaves of a number of species are used by the Chinese to elaborate tea. The British and they consider Rhododendrons are generally poisonous.

The next meeting of the Horticultural Club will be on November 7.

CATALOGUES RECEIVED.

WILLIAM DEAT, Box 144, Kelso, Eng. Sweet Peas, DULAC & CO., LTD., 37, SOHO SQUARE, London. Botanical Books.

W. WATKINS & CO., LTD., Merthyr, Surrey. Chrysanthemums.

D. SEEMANT & SONS, LTD., 10, NEWINGTON, London. Ornamental Trees and Shrubs.

JAMES VINTAGE, 10, NEWINGTON, London. Chrysanthemums and Roses; New Fruit, Fruit Trees, and New Hardy Plants from Western China.

J. CHAPMAN & SONS, Cranley, Sussex—Trees and Shrubs.

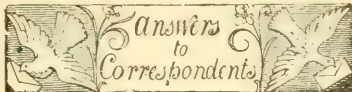
L. S. HARRITT, 162, Charnwood Street, Leicester—Bulbs and Roots.

W. DRUMMOND & SONS, 10, Strand, London. Ornamental and Fruit Trees; Roses, Rhododendrons, &c.

FOREIGN.

PAUL & BERGMANN, 10, Rue de France, Paris. ERMING, Paris. 10, Rue de France, Paris. —New Plants, Vegetables, and Fruits.

FREDRICK ROEMER, Queimburg, Germany—Flower Seeds.



Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the *Publisher*; and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the *Editors*. The two departments, Publishing and Editorial, are distinct, and such unnecessary delay and confusion arise when letters are misdirected.

ABNORMAL RUDBECKIA: *M. Bingham, Jersey.*

The uppermost bracts of the head of your *Rudbeckia* have become leafy; they are dentate, and have long petioles. They have no florets above them, so far as can be seen, as the small scarious normal bracts have distributed throughout the rest of the head. The involucral bracts are also somewhat leafy, but this is probably a normal feature. No mention of this abnormality is made by Penzig in his work on *teratology*.

APPLE DISEASED: Correspondent. The Apple *Blenheim Pippin* which you send us is attacked with brown spot, which affects more often the softer-fleshed Apples. The cause of such spotting is not known for no fungus has been found on the fruits which would be likely to be the cause.—*T. G.* "Black Apples" are caused by *Monilia fructigena*. The trees should be sprayed with Bordeaux Mixture, commencing when the leaves are beginning to expand.

APPLES FOR CRISPING GARDENS IN LANSHIRE: *J. M. H.*

The best six varieties of dessert Apples in their order of merit for exhibition in November are Cox's Orange Pippin, Ribston Pippin, Allington Pippin, Rival, Charles Ross, and King of the Coppin. The best six varieties of Pears in the same order of merit are Doyenné du Comice, Pitmaston Duchess, Charles Ernest, D'urondeau, Beurré Hardy, and Beurré Alexandre Lucas. The best four varieties of culinary Apples for exhibition are Peasegood's Nonesuch, Emperor Alexander, Gascoyne's Scarlet Seedling, and Bismarck. All the Apples should be worked on the broad-leaved Paradise stock, and the Pears on the Quince stock. You may plant them about 2 feet apart.

CEDAR OF CANADIAN SWAMPS: *Schubert, Eng.*

The so-called Cedar of the Canadian swamps is also known as the American Arbor-Vite, its botanical name being *Thuja occidentalis* of Linnaeus. It is, however, a very different tree from the species usually known as *Arbor-Vite* in gardens. The latter is correctly the Chinese *Arbor-Vite*, or *Thuja orientalis* of Linnaeus. It may be mentioned that the genus *Thuja* is divided into four distinct groups. *T. occidentalis* is typical of the first group and *T. orientalis* of the fourth group. The last-named tree is sometimes met with in gardens under the name of *Biota orientalis*, but although *T. occidentalis* has several synonyms, it is only known as *T. occidentalis* in the British Isles. If a tree were ordered from a nurseryman under the common name of *Arbor-Vite*, it is almost certain that the Chinese species would be supplied. Another American tree is sometimes called the Giant *Arbor-Vite*, Red Cedar or Cane Cedar. This is *Thuja plicata*, sometimes called *T. gigantea*, and is common on the Pacific coast. It is a more vigorous tree than *C. occidentalis*, and the two species cannot very well be confused.

CHRISTENSEN: R. G. N. See reply to *R. H. Levant*, for storing Walnuts.

CLIMBER FOR PORCH: *W. Walker.*

The most suitable plant for the position you mention would be *Crataegus Pyracantha*. This is not, of course, a climber, but it is frequently used to plant against walls. In addition to being evergreen, it bears large numbers of white flowers in May, and a good crop of showy, orange-scarlet fruits in autumn. It will be necessary to wire the walls in order to allow of the plant being trained to cover the required space. By cutting it back in spring it can easily be kept from making too much breast wood.

ELM TREE BARK: C. C. Dandridge. The substance on the bark is an imperfect Lichen, which does not seriously injure the trees. It may be removed by spraying the trees with the Bordeaux Mixture.

"FRENCH" GARDENING: H. L. Pupils are accepted, on payment of a premium, at the following institutions, where "French" gardening is practised.—Hatchney French Garden, Tisbury, Wiltshire; French Garden Co., Fleet, Hampshire (this firm specialises in Mushrooms); Farnthorpe French Garden and Nursery, Althwaite, Grange-over-Sands, Lancashire; French Garden Co., Ltd., Christchurch, Hampshire; and the Thatcham Fruit Farm, Henwick, near Newbury (the pupils at this establishment are mostly women).

GROWING FLOWERS AND FLOWERING PLANTS FOR MARKET: Hardworker. You ask if there is a living to be made in the South of England by the growing of flowers and flowering plants for market? Much will depend upon the possession of cultural knowledge of the work in which you wish to embark, your application to the business, and the selecting of a suitable place in which to start the enterprise. A light loamy soil resting on a gravelly subsoil well exposed to the south or south-west, and protected from north and east winds is the most suitable for the growing of flowers and other crops out-of-doors. A good supply of water, nearness to a railway station, large town and a central market in which to dispose of your produce at the least possible cost in the way of carriage are necessary conditions. The freight of coal, manure, and similar materials should be borne in mind when choosing your nursery site. The *Book of Market Gardening and My Gardener*, which may be obtained from our publishing department at 2s. 9d. and 2s. 10d. respectively, would prove helpful to you. For a list of flowers to grow in the open garden see answer to *W. H. H.* (under the heading of Crops under Glass) in the issue for October 7, p. 265. If you intend growing flowering plants under glass, it would be more than ever necessary to live within easy reach of a town containing good shops where you could send your plants in your own conveyance at a small cost, and you should grow only those plants which are easily disposed of, and which you can turn into money in as short a time as possible. Bulbs of the following kinds would pay, namely, *Narcissus* (*Daffodils*), *Emperor*, *Empress*, *Golden Spur*, *Sir Watkin*, *Horsefieldii*, *J. B. M. Camm*, *Barri Conspicuus*, *Madame de Graaff*, *Bicolor Empress*, *Victoria*; *Tulips*: single varieties of the *Duc van Thol* type, *Parrot* and *Darwin Tulips*; *Hyacinths* in variety and *Freesia Leitchii* major. Good bulbs of *Narcissus* and *Hyacinths* should be potted singly into 5-inch pots, putting three *Tulips* into the same size pots. *Freesias* being placed in 3-inch pots, five bulbs in each pot. All the pots should be well drained, and the potting compost should consist of sandy loam and short manure, free from worms, in the proportion of three parts of loam to one part of manure. The earlier the bulbs are potted up after their arrival in this country the sooner will they come into flower. *Tulips* may be set out in rows in ordinary cutting boxes filled with the same kind of compost, putting about 24 bulbs in each box. After the flower-spikes have made a few inches of growth shade them with a strip of canvas, placed 12 inches or 15 inches above the plants with a view to promoting a strong growth. *Hyacinths* and *Narcissus* may be obtained in quantity if treated in like manner. Pot plants of *Spiraea astilboides*, *S. floribunda*, *S. Peach Blossom* (pink flowers), *S. compacta multiflora*, and *S. Washington* growing in 5-inch and 6-inch pots, always command a ready sale in early spring, as also do well-flowered plants of the following species: *Deutzia gracilis*, tuberous-rooted *Begonias*, and winter-flowering *Begonias* of the *Gloire de Lorraine* type; *Cytisus racemosus*, *Cyclamen latifolium*, *Fuchsias*, *Mignonette*, *Rhododendron sinense* (*Azalea mollis*) in 6-inch and 8-inch pots. *R. indicum* in 5-inch pots, *Arum Lilies* (*Richardia africana*) in 6-inch pots, and *Salvia splendens* grandiflora. Cultivate a few popular plants in quantity rather than many species that are

seldom asked for. In preparing the ground for the culture of flowers in the open, it is necessary that land of the description indicated above should have a good dressing of short manure dug or ploughed into it, and that the soil then, if lumpy, be harrowed over, rolled, and re-harrowed before setting out the plants. The soil should be made firm about the roots of each plant in planting. The dwarf-growing plants should be placed nearest the "walk-side" of the beds or borders. In planting Chrysanthemums allow a space of 2 feet between the rows, and the same distance from plant to plant in the rows. Afford a space of from 15 inches to 19 inches between rows of the taller-growing, branching Asters, and 12 inches from plant to plant. Stocks and Sweet Sultan may be given a space of 15 inches between the rows and 12 inches in the rows. Yellow Marguerites should be planted in beds consisting of four rows set at 2 feet apart, and at the same distance from plant to plant in the rows, leaving a space of 4 feet between the last row of one bed and the first row of the succeeding bed to provide an alley, and to admit of the flowers being gathered without damaging the plants when the latter have completely covered the ground space of the beds. The white-flowering Marguerites do not require so much space between the plants, being less robust growers. Dahlias should be allowed a space of 4 feet each way.

GRUBS DAMAGING PRIMULAS AND CYCLAMEN: H. & Son. The grubs damaging your plants are Weevils. If the plants are turned out of their pots occasionally, and all the larvæ which are visible picked out by means of a pointed stick and destroyed, this may be sufficient. If this treatment is ineffective, shake the roots entirely free from the soil and larvae, and re-pot the plants in a fresh compost. Another method of killing the grubs is to turn the roots out of the pots, and spray the soil and roots with carbon bisulphide. They may also be trapped with pieces of vegetable, such as Potato or Turnip, buried in the soil. Weevils feed at night.

HIPEASTRUMS (LAMEYLLIS) TO FLOWER IN APRIL: C. L. M. As soon as the growth is complete the bulbs should be gradually dried off. A watering once a week will suffice for about a month to come. After that time, place the plants on their sides and withhold water entirely, at the same time reducing the temperature gradually. When the plants are quite dormant, place them at the warmer end of a greenhouse. About the end of February shake the bulbs out and re-pot them in fresh soil. From that stage keep them in a temperate house, where a minimum temperature of from 50° to 55° Fahr. is maintained. Afford water carefully until the plants are making growth. The flower-spikes should begin to push by the end of March.

INSECTS: T. D., Lincoln. The animals sent are a kind of millepede, belonging to the genus Polydesmus. Only dried skins came to hand, so the species cannot be stated. They are certainly destructive to all kinds of vegetation, but may be destroyed by mixing vaporite with the soil.—*F., Devon.* The caterpillar is that of the Pale Tussock moth (*Dasychira pudibunda*), and is known as the Hop Dog. It feeds on Hops, Elm, Lime, and other trees.

INSECTS ON ROSES: R. H. W. The damage to your Roses has been caused by thrips. These insects have been very abundant this year on many plants. As far as is known, they hibernate in the soil, and it would be well to treat it with some soil fumigant such as Vaporite or Fumite. Thrips are also destroyed by spraying with nicotine wash. It would be well to give your Roses a good syringing with a nicotine preparation now. There are several excellent preparations on the market, such as Yoss's Nicotine Wash and Campbell's Nicot Soap.

LYLY OF THE VALLEY: D. Chandler. A market bunch contains twelve flower spikes. These are bunched round a small pad of rough foliage made into a wand about an inch in diameter and 3 inches long. If you intend to send flowers to the market you should buy a market bunch and copy it. In bunching for market the flowers must be graded in at least two qualities.

NAMES OF PLANTS: London Garden. Bous-singaultia baselloides.—*M. E.:* Verbascum Blattaria.—*L. G. P.* Specularia speculum.—*Wm. G. Wadge.* 1, Eucynchos radicans tricoloribus; 2, Nepeta Glechoma variegata; 3, Micromeria Douglassii; 4, Sedum sarment-um variegatum; 5, Lycium chinense; 6, Isolaema hirsuta; 7, Callicarpa purpurea.—*Hard-worker.* Rudbeckia species, probably *R. aurea*. We cannot name with certainty from the single flower.—*G. E.* Amaryllis Belladonna, a West Indian bulbous plant. The bulbs should be planted at the base of a warm wall facing to the south. If the wall is that of a hothouse, so much the better, as the plants will be sure to flower every season owing to the extra warmth in the soil.—*R. P. S.* The shrub which grows in your brother's garden on the Lake of Como is *Olea fragrans*. It is not likely to succeed in Kent in the open ground, but will probably grow against a south wall.—*H. Perkins.* Hibiscus Trionum (annual).—*J. Mason.* Probably Gnaphalium luteo-album Veronica longifolia var.—*M. E.* 1, Thymus serpyllum var. pulchellum; 2 and 3, specimens too scrappy to identify; 4, Saxifraga hypnoides; 5, Thymus serpyllum lanuginosus; 6, Saxifraga trifurcata; 7, Veronica saxatilis; 8, Arenaria balearica; 9, Veronica serpyllifolia; 10, V. epacrida; 11, Sedum rupestre; 12, S. album.—*Senex.* Stapelia maculosa.—*J. W. N., Peterborough.* Amaryllis Belladonna.—*G. C. T.* 1, Cotonaster frigida; 2, Pyrus pinnatifida.—*Staffs.* 1, Aster Amellus (Italian Starwort); 2, Aster Novae Angliæ and A. pulchellus; 3, probably Beberis Darwinii (send when in flower).—*Anxious.* 1, Aster Novi-Belgii Maiden's Blush; 2, A. ericoides; 3, A. N.-B. Robert Parker; 4, A. N.-B. Daphne; 5, A. dumosus.—*Thuncliffe.* 1, Miltonia Clowesii; 2, Tillandsia Lindenii; 3, Cattleya Bowringiana.—*F. T. T.* 1, Oncidium barbatum; 2, Odontoglossum gloriosum; 3, Cattleya intermedia; 4, Laelia pumila; 5, L. harpophylla; 6, Lycaste tricolor.—*C. H.* Zauschneria californica.

ORCHIDS DISEASED: G. U. R., Lintithgow. The Orchids are attacked with the fungus Gloeosporium orchidis. It will be best to remove badly-affected leaves, and sponge the plants daily with liver of sulphur in solution—1 oz. in four gallons of water.

PALM ON A LONDON LAWN: T. J. C. It is scarcely likely that Phoenix will survive the winter out-of-doors even if you protect it in the manner you propose. You should get a friend to house it for that period, or, failing this, make an arrangement for the purpose with some nurseryman.

PAPER WHITE NARCISSUS: D. Chandler. It is not profitable to grow this variety for market in England owing to the importation of French-grown Narcissi, which are usually better flowers than those forced in England.

POLYGOONUM BALDSCHUANICUM: P. The sprays of this plant sent under a varietal name are well coloured, but the high colouring of the species has been general this year, and flowers on the original plant at Kew are quite rusty in colour. Your specimens of the type are very poor, and not at all typical of this fine climbing plant. As in many other plants, the high colouring depends to a great extent on the kind of soil and situation, whether exposed or shady, and on the character of the season.

PRESERVING WALNUTS: R. H., Lavant. A good method of preserving Walnuts is to dig holes in the open ground and sink Seakale pots up to the rims. A piece of slate should be placed at the bottom to prevent worms from getting into the pots. The nuts should be put into the pots, and the lids placed on securely. In these circumstances the nuts will remain for several months in a fresh and firm condition. Another way is to keep the Walnuts in tubs or boxes buried in white sand.

"RARIORUM AFRICANARUM PLANTARUM": Rag. This work was published by J. Burmann in 1739-39, and contains 268 pp. and 100 plates. In Messrs. Wesley & Son's catalogue, 1905, it is offered for £1 8s.

REGISTERED FROST IN YORKSHIRE: Tripoli. On January 26, 1881, a temperature 9° below zero (41° of frost) was registered in Yorkshire at Sorrel Sykes.

RHODODENDRON SHOOT: J. W. T. The white substance on the leaves is apparently a deposit of lime from the water used in syringing the plants. There is no fungus present.

ROSES ON IRON TRELLIS: A. F., S. Wales. The sudden changes in the temperature of iron always have a bad effect on Rose wood in contact with it. The only really effectual method is to cover the iron with some non-conducting material in the way you have tried, but rope, unless dressed, when it gets old is apt to harbour insects. No doubt cane or wood is better, but it cannot always be used. We have had the same problem to deal with in connection with an iron fence about 9 feet high on which Roses are grown. Tying a small piece of asbestos cloth round the iron just at the points where the Rose is tied has been fairly satisfactory, but is rather troublesome. Where the Roses are not required to grow much taller than the height mentioned, it is sometimes possible to get over the difficulty by materially shortening the time during which the Rose is attached to the iron, and where this is practicable it has proved the best way. For this purpose Roses of the type of Dorothy Perkins are used, which make long, sinuous growth from the base every year, and have the old wood removed annually. During the winter a preliminary clearance of this old wood is made, but the young basal growths are allowed to remain running along the ground, and it is not till rather late in the season, say the beginning of April, that the final tying of the young shoots is effected. The method has many disadvantages. It involves leaving the young shoots about the ground in a way that in some positions might look untidy, and tying up so late often leads to unavoidable damage to the young growths, and therefore requires great care, but in our own case the treatment is effectual.

STERNBERGIA: B. L. The bulbous plants forming this genus require to be planted in a situation where they will get thoroughly baked in the summer months. The best place is at the foot of a wall facing south, but even in such a place they will not always flower well except after exceptionally warm, dry summers. It is useless to plant them in the open ground as the bulbs do not ripen sufficiently to produce flowers. The soil they require is a heavy loam, and the bulbs should be planted not less than 6 inches deep.

SWEET-SCENTED PELARGONIUMS: Correspondent. In regard to your further questions, if you write to Mr. Jas. Hudson, Gunnersbury House Gardens, Acton, W., he will help you in the matter of identification so far as he is able to do so. Some nurserymen catalogue the best-known varieties. Two such firms are Messrs. James Veitch & Sons, of Chelsea, W., and Messrs. Cannell & Sons, Swanley, Kent.

VIOLAS DISEASED: H. V., Preston. The fungus attacking your Viola plants is Puccinia violæ. All the infected leaves should be removed, and the plants sprayed occasionally with liver of sulphur in solution.

WOODLICE: G. H. This pest is generally most abundant in the warmer houses, more especially in a house containing a hotbed composed partly of leaves. A good plan is to prepare traps by hollowing out pieces of Potato, or Turnip, and placing the pieces, hollow side downwards, in the haunts of the woodlice. On examining the baits each morning, it will generally be found that they contain woodlice, which should be destroyed and the baits replaced. Another way is to poison them by soaking the baits in Paris Green or white arsenic, if desired. A correspondent has used Steiner's "Vermin Paste" with good results. Mix the paste with Barley meal or middlings, putting it on pieces of glass, wood, or tin, and placing the baits in the haunts of the woodlice.

Communications Received. T. J. F., Malmesbury—K. L. H. H. M., H. M. M., J. W. D., B. C. R. B., M. P. G., B. L. G., W. H. H. T., C. T. D., R. A. M., W. B. & Sons, G. L. W., T. Seaside, W. K. F., J. B. J., W. H. R. D., S. H. K., T. M. G., W. H. C. R., A. P., N. R. B., W. C., Salop, G. E. J., J. J., MacD., E. H. C., E. D. (Thanks for 16, for R.G.O.F. box). H. E. E., G. H. S., J. W. D., F. C. W. F., Brox. J. D., C. W. S., O. A. C., M. B., G. W. H., G. W., Pomo., R. G. O. C., T. E. R., J. F. J. B. B. W. T., P. J. W., J. P. A. T., W. J. F., M. H. T., T. H. M., A. Reader.—C. F.



THE
Gardeners' Chronicle

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SELF-STERILITY IN PLUMS.

ALTHOUGH the question of sterility in fruit trees is a comparatively new one in Britain, in America it dates from 1870, when Wente published the results of his investigations on the subject, under the title of *The Pollination of Pear-Flowers*.

Since then, the results of experiments in Europe, and more especially in America, show us, beyond a doubt, that by far the greater majority of Apples, and possibly all varieties of Pears, are self-sterile; and that the same applies, with a few exceptions, to the Japanese Plums and to the native Plums of America. It should, however, be noticed, in the case of Apples, and more especially Pears, that although self-sterile in the scientific sense—i.e. when self-pollinated, or, of course, pollinated from another tree of the same variety, they do not bear seed, yet many varieties bear fruit to a greater or less extent, this fruit being seedless.

Mr. Chittenden has further shown that these fruits, in the case of Pears, are of a different shape from the normal seed-bearing ones.

It is only natural that the problem of self-sterility should first arise in America, where everything, including fruit planting, is done on a large scale, and where

it may happen that there is a large plantation of one single variety, so far removed from any other, that foreign pollen is not transferred by insect agency; a state of affairs which must exist rarely, if ever, in Europe.

Again, self-sterility must not be confused with sterility due to malformation of the sexual organs of a flower or to the mere absence of any pollinating mechanism should insects fail, as is perhaps the case of the Gooseberry; for, whereas, given insects, an isolated plot of any one variety of Gooseberry will crop perfectly well, no number of insects will produce a crop in an isolated orchard of, say, Cox's Orange Pippin, this latter being self-sterile and needing the pollen of some other variety.

Experiments started by myself in 1910 with ordinary European Plums show that the varieties fall into two sharply-defined groups, namely, self-fertile and self-sterile, just as do the Japanese and American Plums.

Although a beginning only has been made in the study of this wide question, the facts which have been brought to light are likely to prove of interest to fruit growers.

The method of procedure adopted in these experiments is very simple. Suitable branchlets of the Plum to be self-pollinated are enclosed, before the buds open, in special paper bags.

These bags, which are very transparent, do not hurt the flowers at all, except where they actually rub against them.

When the tree is in full flower, the bags are removed, and the flowers are pollinated by dusting them over with a brush, or with the finger, previously sterilised in spirit; then the bag is replaced, or a new one put on, and it is not again removed until after the fruit has begun to swell.

The bags used are mostly 7 inches by 13 inches.

In 1910, seven of these bags, on Victoria, gave 68 fruits, and in 1911, 36 bags gave 396 Plums; but this is no real indication of how the fruit set, for nearly every flower set a fruit, and more than half were thinned out by hand.

In the case of the Histon Greengage, five bags gave, in 1910, four fruits all in one bag; in 1911, out of 10 bags, there was not one fruit.

Treated in a similar manner, 28 bags on Early Orleans, 19 on Late Orange, 16 on Sultan, 15 on Late Orleans, 3 on Kirke's Blue, and 11 on a "Sloe" all gave not one single Plum. These then were self-sterile.

On the other hand, 3 bags of Prince Englebert, 12 of Czar, 18 of Pershore, 15 of Yellow Magnum Bonum, and 7 of a Damson set nearly every flower, and, like the Victorius, had to be thinned. These were obviously self-fertile.

Experiments carried on with pot trees in a fruit house made insect-tight with muslin, each flower being carefully self-pollinated by hand, confirmed the results obtained out-of-doors, and in addition, showed that Coe's Golden Drop, Reine Claude d'Althann, Green Gage, Early Green Gage, Blue Imperatrice, Late

Transparent, and Washington were absolutely self-sterile.

There were two fruits on Green Gage, and one on Reine Claude d'Althann, but their position on the trees made it highly probable that they were due to accidental cross-pollination.

Denniston's Superb, Early Transparent, and Reine Claude Violette or Purple Gage set nearly every flower, and had to be thinned.

River's Early Prolific, on the contrary, gave, in 1910, out of eight bags, nine fruits; in 1911, out of 28 bags on two healthy trees, two fruits; and a pot tree which bore some 110 flowers set 12 fruits. This, then, is a variety which, though not absolutely self-sterile, is better cross-pollinated.

One interesting fact observed was that, if, in one of these self-sterile varieties, the flowers are not pollinated at all, they fall off from three to four days after fully opening. If, on the other hand, they are self-pollinated, the fruit may swell until it reaches the size of a culinary Pea, but sooner or later drops off, generally within three weeks. Microscopical sections show a great growth of nucellus tissue. Cherries exhibit this phenomenon even more markedly.

It seems probable that the trouble known as "June Drop" of the Americans, and also the early "stoning" of Greengages and Cherries, which takes place long before a stone begins to form, are to be explained as consequences of self-pollination.

It will be found that the real stoning, or thinning which takes place on a really self-fertile variety like Victoria, or Pershore, is a much more gradual process, and is not by any means confined to the first month.

Further investigations are in progress, and the results will be reported in due course. H. Backhouse.

THE ROSARY.

HYBRID TEA ROSE MME. HECTOR
LEULLIOT.

MOSS, PERNET BUCHER, of Lyons, has given us a group of yellow Hybrid Tea Roses which, with the exception of one variety, has rapidly become popular. Mme. Ravary, introduced in 1899, is now well known, and scarcely less popular as *Le Progrès*, which this raiser put into commerce in 1903. Mme. Hector Leulliot followed in 1906, and a year later Mrs. Aaron Ward was distributed, the latter rapidly becoming known and appreciated. Of this group of Roses, however, the best, and the least known, is perhaps Mme. Hector Leulliot. Of a golden-yellow colour, tinted with apricot, its flowers are beautifully shaped, and much fuller than any of the other Roses mentioned here. The flowers vary somewhat in colour, especially in a summer such as that of 1911, but Roses from this raiser are particularly liable to vary, the Lyon Rose being a notable instance. Many amateur growers of Roses do not seem to know Mme. Hector Leulliot, and are much surprised when they see examples in flower. It is one of the most fragrant of Roses, and has large, handsome foliage which, so far as my experience goes, seems to be immune from mildew. It is a free-flowering variety of a vigorous habit of growth, and possesses so many good qualities that it is astonishing to find it so little known. Those who have seen its richly-coloured, fragrant flowers are always delighted, and add this Rose to their collection. *George M. Taylor, Scotland.*

NEW OR NOTEWORTHY PLANTS.

ARISTOLOCHIA KEWENSIS.

(*A. TRILOBATA* × *A. BRASIILIENSIS*.)

(See figs. 133, 134, and Supplementary Illustration.)

A HYBRID *Aristolochia* is the latest addition to the chance hybrids that have originated at Kew. In the Palm House there is a large collection of strong-growing tropical climbers, trained to wires against the lower part of the curvilinear roof, and among them are various species of *Aristolochia*. Two of these grow side by side, with their shoots intermixed, so that a mating of them was not unlikely, as they usually flower at the same time. A capsule eventually ripened on *A. trilobata* which was gathered, and the seeds sown. From these, plants were raised, which, on flowering, bore unmistakable evidences of their hybrid parentage. Mr. Worthington Smith's drawings of the two parents and their offspring show the intermediate character of the hybrid, not only in the perianth, but also in the form of the anthers and stigma, and in the foliage.

A. brasiliensis is, perhaps, the best known of all the tropical species of *Aristolochia*. It was introduced in 1838, by Gardner, who sent seeds from Brazil to the Glasgow Botanic Garden. For large, tropical houses it is a most serviceable climber, as it is easily kept in health, and grows almost as freely as a Grape vine, producing in summer its large, oddly-shaped yellow and brown flowers in great profusion and without fail. The odour of the flowers is disagreeable, but it is scarcely perceptible in a large house.

A. trilobata is also from South America, where the natives are said to use it as a cure for snake bite. It has been in cultivation at Kew for the last 30 years or more, and, although it is not nearly so sturdy a plant as *A. brasiliensis*, it is quite as good-natured under cultivation. Its leaves are more or less three-lobed, dark, glossy-green, with reddish veins, and its flowers, which resemble in form the pitcher of a *Nepenthes*, except for the long, dull-crimson tail, are green, with red veins. Compared with other cultivated tropical *Aristolochias*, it is not attractive.

A. kewensis is as strong a grower as its male parent, and its leaves are nearly as large as in that species, whilst they are firmer in texture, and show traces of red in the veins. The flowers are dull yellow, with red-brown reticulations, the broad, tail-like lip being wholly dull crimson. It is worth a place among tropical climbers, and no doubt will soon be distributed, as it can be multiplied by means of cuttings.

The chance crossing of two species of *Aristolochia* is interesting, as the flowers, whilst they are constructed to prevent self-fertilisation, are supposed, in a wild state, to be visited by a special kind of insect. The method of fertilisation is as follows:—The tube of the corolla is lined with reflexed hairs, which permit small insects to find their way down into the inflated base, but prevent their getting out again. The insects crawl over the stigmas, and if the latter are in a receptive condition, and the insect has previously visited a flower in which the pollen was free, fertilisation is effected; but the anthers do not release the pollen until after the stigmas have been fertilised with pollen brought from another flower, or have passed the condition of receptivity. In any case, the insects are kept prisoners for several days, until the stigmas have withered and the anthers opened, when the hairs which close the trap collapse, and the insects are free to depart laden with pollen. The odour of the flowers in the Palm House at Kew would probably attract ants, which are numerous there, and they might convey the pollen from a flower of *A. brasiliensis* to one of *A. trilobata*. Only one flower appears to have been fertilised in this way. W. H.



FIG. 133.—*ARISTOLOCHIA TRILOBATA*.

(Parent plant of the hybrid *A. kewensis* is shown in the Supplementary Illustration.)

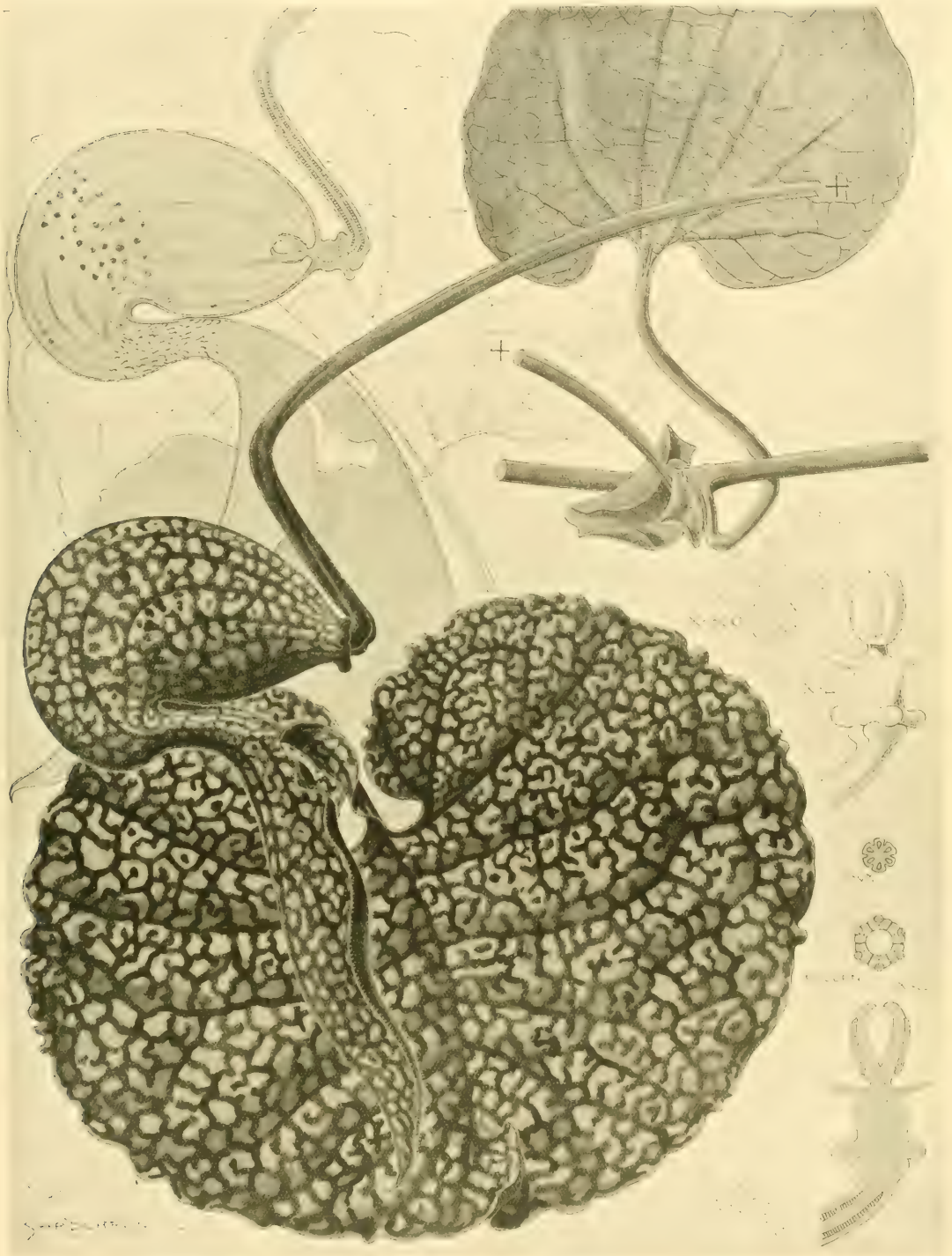


FIG. 134. ARISTOLOCHIA BRASILIENSIS.
(Maleparent of *A. kewensis*.)

LONGFORD CASTLE.

(Concluded from p. 284.)

BROAD, well-filled borders of perennial plants stretch around the kitchen garden wall to the head gardener's detached, but convenient, residence. The outer edges of the borders are planted with various Pinks, Aubrietia, Arabis, &c., which are allowed to encroach on the gravel path, and so make an agreeable broken bordering. The general scheme of these borders consists of bold groups of the various plants, so arranged as to provide a good display throughout the hardy plant season. At the time of my visit the *Phloxes*, *Campanulas*, *Rudbeckias*, *Sunflowers* of many kinds, *Liliums*, and *Anchusas* were providing abundant colour, whilst there were large groups of the best varieties of *Michaelmas Daisies* showing plenty of flower-buds for a later blossoming. A hammered garden gate of beautiful design leads into the home kitchen garden. The outer walls enclose many other 12 feet high brick walls, and so provide for the cultivation of large quantities of fruit. Everything at Longford is done on a large scale. For instance, Figs, which are greatly esteemed at the castle, are grown in a large house containing two huge trees of the varieties *Pingo de Mel* and *Bourjassotte Grise* to furnish ripe fruits in March, whilst late crops are obtained from a dozen trees of *Brown Turkey* and *Brunswick* growing against a warm, outside wall.

Ripe Melons have to be provided daily throughout the season, and to ensure a plentiful succession several hothouses are set apart for their cultivation. High quality rather than size is aimed at, and such varieties as *Gulton Scarlet*, *Earl's Favourite*, and *Longford Seedling* are chiefly grown. There are many vineries, and the houses in bearing show remarkable culture. That difficult variety *Madresfield Court Muscat* was in the highest perfection; large, shapely bunches bore fine berries as black as a *Sloe*. The much-dreaded splitting of the berries has no terrors for so skilful a cultivator as Mr. Tucker. Next are two houses containing *Muscat of Alexandria*; here, again, the same pitch of excellence is apparent, every berry of that rich, transparent amber colour which betokens the highest skill of the Grape grower, and always accompanies rich flavour. Many other varieties of Grape are equally well grown. *Black Hamburgh*, *Foster's Seedling*, *Mrs. Pince*, *Lady Downes*, *Gros Maroc*, and *Prince of Wales*. The last-named variety as grown here is the handsomest of all the black Grapes. A huge, tapering bunch, with fine shoulders, bearing large, oval berries of first-class flavour, which keeps well until the earliest pot vines ripen their fruit. The necessity for rotation is generally well understood in connection with the kitchen garden crops, but the principles are not often applied to fruit houses, so it was pleasant, as well as instructive, to hear Mr. Tucker remark on his future plans. "These two rods will be taken out this autumn, when I shall plant young canes of *Cannon Hall Muscat*; three years hence those old rods will go to the fire heap. If you want first-class Grapes you must periodically renew the rods as well as the borders." In the plant houses the same methodical system is practised. Mr. Tucker looks forward, not only from one season to another, but several years ahead. Longford Castle is one of the few remaining establishments where hothouse Pines are still grown and here the several successional houses contained vigorous plants, chiefly of *Queens*, in various stages of growth. A long Peach case had the back wall covered with Peach and Nectarine trees, from which the crops had been gathered, whilst along the front there were

many cordon trees of Pear and Plum bearing huge, highly-coloured fruits. The several span-roofed Peach houses contain such sterling varieties as *Hales' Early*, *Violette Hative*, and *Libra*, which was considered by the late Mr. Blackmore to be the finest of all Peaches, and is greatly esteemed here. Many Nectarines are grown under glass, and against the warm outside walls the variety *Humboldt* still bore handsome fruits. The Peaches which are extensively grown out-of-doors include *Prince of Wales*, with fine brightly coloured fruits, *Late Devonian*, and *Gladstone*, which late varieties were still in bearing.

Longford Castle has always been famed for its fruit, and Mr. Tucker, who was trained in such famous fruit-growing gardens as those at *Elvaston Castle*, *Cardiff Castle* and *Powderham*, when these places were at their zenith, continues the Longford traditions. The exigencies of an unusually large household do not permit of exhibiting as in days of yore, but, although not seen on the show boards, the quality of all the fruit grown is of the highest grade, and our leading exhibitors would find in "Tucker of Longford" a

of the young men. They have a large and airy dining-hall, from which they pass to a fine sitting-room with pleasant outlook and a library. On the upper floor there is a bath-room, to which hot water is supplied in practically unlimited quantities, and there is ample sleeping accommodation for the large staff. The Earl of Radnor fully realizes the meaning of *noblesse oblige*, and houses all his people in a fitting manner.

PLANT HOUSES.

There is a conservatory to be kept gay with flowering plants at all times, and the very many plant houses are full of suitable plants. The first batch of *Chrysanthemums*, which bore promise of fine blooms, had just been housed. A very large *Carnation* house of teak wood was being scrubbed, preparatory to its reception of over a thousand *Tree Carnations* of such kinds as *Britannia*, *Rose-pink Enchantress*, and *Lady Bountiful*. In the next house there were many *Malmaison Carnations* just opening large flower-buds. The chief varieties grown are *Lady Coventry*, *Princess of Wales*, and *Calypso*. *Palms* are in frequent request,



FIG. 135.—THE BOTHY AND ROCK-GARDEN AT LONGFORD CASTLE.

very hard nut to crack. Beside the quantity of fruit grown at the castle gardens, which includes a great many Plums, Gages, Cherries, Apples, and Pears, as well as the kinds already mentioned, there is a fine fruit garden at *Aldbury*, which was planted soon after Mr. Tucker took charge. Here on high ground, secure from destructive spring frosts, is an excellent fruit garden with many high-class Pears and Plums on the walls, and with bush Apple trees at 14 feet apart in the rest of the ground. *Cox's Orange Pippin* has been removed, as it cankered badly, but the remaining trees are in the best of health, and give evidences of skilled attention. Their clean branches are a sufficient testimony to the value of an alkali winter-wash, which forms part of the routine work in this garden. Space will not permit the mention of one tithe of the varieties which are so successfully grown, but beside the well-known standard varieties *Allington Pippin*, *James Grieve*, *Wismar's Dessert*, *Paroquet*, with astonishing colour, *Chas. Ross*, *Belle de Boskoop*, and *Lord Hindlip*, which is so good a keeper, are excellently grown.

In an angle of the walls of the frameyard stands a splendid bothy for the accommodation

and a large span-roofed house is set apart for their cultivation. *Codiaeums*, *Poinsettias*, *Hippeastrums*, *Gardenias*, *Begonias*, of many kinds, are all grown in great numbers, and a fine batch of *Clorodendron fallax* bears large heads of brilliant flowers. The many heated pits contain various plants which are in demand at their seasons; one pit is devoted to Ferns, another was filled with *Richardia Elliotiana*, whilst a third contained healthy plants of *Calanthe*. *Heliotrope* and *Zonal Pelargoniums* for winter flowering are extensively grown, as also are many varieties of *Bouvardia*. Several *Orchid* houses are full of many healthy plants of such genera as *Cypripedium*, *Dendrobium*, *Oncidium*, *Odontoglossum*, and *Tricopilia*, bearing a goodly number of flower-spikes; whilst various batches of seedlings give evidence that these plants receive full attention. At the entrance to the plant ground there is a long, low rockery, built in a tasteful and unpretentious manner, in which *Lady Radnor* takes an especial interest. The rockery is well furnished with a great variety of plants, the favourite occupants are various *Dianthus*es, *Cistus*es, *Campanulas*, *Anemones*, *Helianthemums*, *Valerians*, and several species of *Allium*.

The kitchen gardens, which are very extensive, produce fine crops of vegetables: Asparagus, Seakale, and Artichokes being required in especially large quantities. An uncommon vegetable is the French variety of Potato, Vitolette, with long purple tubers, which are so excellent for salad purposes. The various quarters contain flourishing crops of successional vegetables sufficient in numbers to cope with the enormous demand which is made on this famous garden.

J. C. Borlase.

HARDY FLOWER BORDER.

VIOLA GRACILIS.

This beautiful little Grecian species is undoubtedly one of the finest introductions of recent years. From seed, obtained last year from Greece, I have a batch of plants this season which has given good results. In a year that has not been favourable to any of the *Violaceæ*, owing to excessive drought, *Viola gracilis* has, on a light dry soil, given a rich profusion of its deep violet flowers from May until September, the rich dark green foliage, which covers the ground like a carpet, being completely hidden with blossom. On the same soil *Pansies* and *Violas* have, this summer, been a complete failure. If this exquisite little *Viola* were only perfumed it would be a serious rival to the *Violet*, and, as it is, its flowers are quite as beautiful and more lasting when cut. Borne on fairly long, strong stems, its flowers should be of great value for florists' work of all descriptions, and no doubt when it becomes more plentiful *Viola gracilis* will be in great demand for this purpose. It is much admired by everyone who sees it growing, the deep purple flowers with the little white "eye" being particularly beautiful. A derivative named "Purple Robe" has been put into commerce this year, the colour of its flowers being said to be even more intense than those of *V. gracilis*. This, however, is not my experience, and I prefer the species as much the finer of the two. "Purple Robe" is a cross between *V. "Papilio"* and *V. gracilis*, the general habit of the latter parent being dominant. I notice that the seeds of the species are somewhat slow in germinating in comparison with those of other *Violas*, but once started they grow quickly and rapidly make good plants, and my batch, from seed, has reproduced itself with but little variation from the type. As an edging plant for borders it is a valuable introduction, and it is no less valuable as a plant for the rock garden. It is easily propagated by cuttings, the present being a favourable time for putting them in.

George M. Taylor, Mid-Lothian.

ASTER ERICOIDES DESIRE.

I CONSIDER this one of the most dainty and elegant of all Michaelmas Daisies, and quite unequalled in its particular class. In the border, in common with all the types of *A. ericoides*, it is a stay-at-home plant, one not destined to rob a square yard or so of ground in its own immediate vicinity in a single year by a great out-spreading mat of stoloniferous shoots, hence it is valuable for including in permanently planted borders. It grows 3 feet or so in height, and, with a natural tendency to develop many of its flower branches laterally, the individual plant requires greater room than do many of the more erect-growing sorts. All the *Ericoides* varieties possess a neatness and an especial charm, being much valued for furnishing cut blooms for personal wear. For this latter use the lateral spikelets furnish well high ideal material. To the private gardener who needs a variety of subjects for conservatory decoration, this variety should prove of much value if cultivated in pots, and under glass the white, bluish-tinted flower-heads assume a purity which greatly increases the value of a plant, the merits of which may not be readily overrated. E. H. Jenkins.

NOTICES OF BOOKS.

A BOOK ON BULBS.*

MR. WATSON, who furnishes the "forewords" to this volume, complains that many species of beautiful bulbous-rooted plants are neglected, though they are worthy of equal admiration with those so extensively cultivated. But that is what must be expected. Nobody can grow everything; selection consequently rules, and it must be admitted that the popular bulbs of to-day form on the whole a selection difficult to improve upon. The author himself fully recognizes the position; those plants which enjoy the greatest popularity receiving the greatest consideration, though, at the same time, the less popular cannot be said to have less than their due, but they are given as much as can be expected in a book of the kind. The volume, it may at once be remarked, reaches a very high level of excellence, and is one that will remain for some time a standard work on the subjects to which it is devoted. Not only is this applicable to the text, but also to the illustrations, which are of a high order of merit. The arrangement of the contents is at once simple and effective. Following elucidatory chapters on what bulbs, corms, &c., are, their cultivation in the open air and under glass; their uses for the supply of cut-flowers; their classification, &c., the larger portion of the volume contains in alphabetical sequence all the genera in general cultivation with description, uses, culture, and references to standard works in which figures are to be found. The lists of popular varieties are not always satisfactory; in some cases they are passed over, not improbably on account of the exigencies of space, but in a book of this kind, which will some day possess a historical value, it would have been worth while to have supplied in all cases at least a select list of names of the very best sorts. The book is singularly accurate, mistakes being very few indeed, and it is therefore curious that in one brief paragraph relating to *Hippeastrum Regine* two errors should occur. One is that the plant first flowered on the birthday of Queen Caroline, the other that it is portrayed on plate 24 of Miller's *Figures of Plants*, plate 24 being *Amaryllis Belladonna*, and plate 23 *H. Regine*, the two having been obviously transposed in printing. The book, it may be added, is beautifully printed in bold, clear type, and is profusely illustrated. R. P.

AMERICAN WHEAT.†

OR the 200 millions of bushels of Wheat imported annually into this country more than half comes from the vast Wheat fields of the Western Hemisphere. Mr. Rutter has undertaken the task of writing an account of the cultivation, cost of production, distribution, and other economic problems connected with Wheat in Canada, the United States, and the Argentine Republic. The results of his enquiries, which were embodied in a thesis presented for the degree of Master of Commerce in the University of Manchester, are now published in book form.

The influences of the soil, climate and variety or breed of plant upon the yield of the crop are all discussed. As judged by the standard reached in the British Isles, the average yield per acre on the Western Wheat fields is very poor; in the Argentine the average is little more than 10 bushels in the United States and Canada from 16 to 18 bushels per acre, as against 32 bushels in this country. These striking differences are due to a variety of causes, of which the most important are the scarcity of labour in the West and the existence of wide areas of cheap land, which conduce to what would be called here dirty and slovenly farming. Another cause of deficient crop is the growth of spring-sown varieties, which are inherently poor yielders, but productive of grain of high quality from the baker's standpoint. Continuous Wheat-growing on the same land for several years, as well as various climatic influences, also assist in keeping low the returns from the land.

With advancing population the necessity of obtaining higher yields from the soil is beginning to be felt in the States, and the surplus to spare for export from this quarter of the world

* *A Book on Bulbs*, by J. Watson and T. Watson. Plant for the Garden Art. and Hort. Co., Ltd., London. By John Weathers. (London: John Murray.) Price 15s. net.

† *Wheat*, by W. P. Rutter. The United States, and the Argentine, by W. P. Rutter. (A. and C. Black.) 3s. 6d. net.

will assuredly diminish in the near future. There is, however, no doubt as to the position in the two neighbouring continents, and Europe need have no fear of curtailed supplies from the West for many a day.

The marketing and grading of the Wheat in America as well as the effect of speculation upon the price of the world's chief bread-stuff are carefully described. Mr. Rutter's essay has involved much work in its compilation and affords a good insight into the cultivation, management, and economic relationships of the Wheat crop of the Far West, all of which differ so much from those prevailing in the intensively-cultivated areas of Europe.

THE GALAPAGOS OR TURTLE ISLANDS.

THE remarkable group of islands on the Equator, in the Pacific Ocean, and about 600 miles distant from Ecuador, is celebrated for having furnished Darwin with abundant materials for discussion, and Sir Joseph Hooker with a collection of dried plants, made by Darwin, which served as a basis for one of his essays on insular floras, and his earlier speculations thereon. *The Voyage of the "Beagle"* and the *Flora of the Galapagos* were given to the world more than 60 years ago, and since then the islands have been visited by a number of expeditions, their natural history more or less thoroughly investigated and the results published. From time to time particulars of the later discoveries have appeared in the *Gardeners' Chronicle*, together with an examination of the different theories on the origin of the islands and their natural productions. In 1905 the Californian Academy of Sciences organised an expedition to the islands, where a whole year was spent in collecting and observing. Mr. Alban Stewart was the botanist of the expedition, and his report was issued early in the present year. It is a comprehensive account, embodying the results obtained by previous explorers. Mr. Stewart had the assistance of Dr. B. L. Robinson, author of a *Flora* of the same group, noticed in these columns in 1902. Apart from pictures, it is a complete consolidation, and largely supplements previous contributions to the subject. The *Cactaceæ* constitute the most striking feature in the vegetation, and the *Gardeners' Chronicle* has already published some original figures referred to below. Mr. Stewart paid special attention to these plants, and has done much towards elucidating the species, previously very imperfectly known, and some of them still undefined. Nine pages of description and 15 out of the 19 plates are devoted to this family, of which 10 species are enumerated, three of which are represented by specimens insufficient for determination, six belonging to *Opuntia* and four to *Cereus*. The plant figured in these columns (Ser. 3, vol. xiii., p. 266, fig. 75) as *Opuntia galapagensis* is, according to Stewart, certainly *O. myriacantha*, a cultivated species also figured (Ser. 3, vol. xvii., p. 177, fig. 56), which Stewart says forms forests 25 to 30 feet in height. The true *O. galapagensis* is described as having a relatively short trunk. The figures are almost entirely of habit, or scenic. Stewart finds that 40 per cent. of the species of flowering plants and Ferns enumerated are endemic, which is low as compared with Mexico and other areas on the mainland of America. He himself describes fewer than 20 new ones, and no new genus. Indeed, the generic endemic element is small, and might be neglected in discussing the origin of the flora. Without quite committing himself, the author admits that many biological facts favour the theory of subsidence as against upheaval—a theory first advanced by Dr. Baug. This theory, ridiculed by Agassiz and others, is gradually obtaining somewhat unwilling adherents. Apparently many species are rare, having been collected only once and in one locality. From the enumeration, it would seem that a number of the species collected by Darwin have not been collected since, for example, *Adiantum carvolum*, *Peperomia galapagensis*, and *P. perobata* all endemic species. W. P. H.

* *The Cactaceæ of the Galapagos*, series 8, vol. xxix. (1908), plates 1 to 25. *The Cactaceæ of the Galapagos*, series 8, vol. xxix. (1908), p. 177, figs. 56-61. *Cactaceæ*, vol. xxix. (1908), p. 7. *Opuntia myriacantha*, series 8, vol. xxviii. (1908), p. 220. *The Flora*, &c., series 3, vol. xxiii. (1902), p. 469.

† *A Botanical Survey of the Galapagos Islands*, by Alban Stewart. *Proceedings of the Californian Academy of Sciences*, fourth series, vol. 1, pp. 7-288, plates 1-19, including a map of the group.

The Week's Work.

THE FLOWER GARDEN.

By R. P. J. O'BRIEN, Gardener to the Earl of Haddington, K.T., Tynningham, East Lothian.

SPRING BEDDING.—The re-filling of the beds with plants to bloom in spring will now claim attention, and it is worth while to consider whether something cannot be attempted which shall be an improvement on the method of employing a large variety of plants. For instance, a dozen different kinds of Tulip often look less well than two or three varieties placed against a harmonious background. Survivals are sometimes seen even now of the terrible old custom of colour rings of Hyacinths all crowded into one bed; but, on the whole, beds are becoming simpler, and the method of permanent planting of bulbs in the grass and under trees is more commonly adopted.

MONTBRETIA.—For the cultivation of these flowers there does not seem to be any established method. Some growers leave the plants in the ground until they cease to flower; others lift and dry the corms; others, again, transfer them to a position where growth remains active, but shelter from frost is provided for the corms. By far the best results were obtained this season from those which were replanted this time last year. These are still blooming freely, while most of those planted at other periods are past. All varieties are more or less hardy, the hardiest being those which take most after M. Pottsi. In all cases deep planting is an advantage, and in winter an extra 3 inches of soil should be placed over the clumps, but it may be removed in the spring.

SCHIZOSTYLIS COCCINEA.—The flower-spikes of this plant are this year much later than usual in making their appearance, and it might be as well to cover them on frosty nights. At this time of year they are chiefly useful for cutting, and, in order to obtain as many blooms as possible, they should be cut as soon as the first flower is expanded. The plant is fairly hardy when planted in poor soil and in a warm, sheltered position, where it flowers well throughout the winter. It should, however, be lifted, divided, and replanted every two years.

SUMMER BEDDING PLANTS.—Rooted cuttings of bedding plants which are not quite hardy should now be transferred to suitable winter quarters. Pelargoniums keep very well in a cold vinery, and only need to have the decaying foliage removed. If the soil is moist, they will not even need water until the spring. Old plants, lifted from the beds, should be denuded of some of the leaves, the long, fibrous roots shortened, and the plants placed in boxes filled with a light compost. If they are in a very cold place, very little root moisture will be needed; in fact, it is possible to preserve them without soil and quite dry in a frost-proof cellar or loft. For Ageratums and Mesembryanthemums a little heat is required, but they must not be overwatered, as this would force growth. In many cases cuttings were put in during the summer to supplement the first supply, of which there was a scarcity. These are not yet rooted, but if they are placed in a cool pit they will strike before spring. Viola cuttings in particular were very scarce. Of these, the old plants should be lifted, the straggling growths shortened, and the plants laid in the soil until March or April, when they may be divided into small pieces, each possessing a few roots.

GENERAL WORK. The long-expected rain is responsible for the appearance of innumerable weeds in the Carnation beds, and among the finer Narcissi, Anemones, and other plants. These are too small to hand pick, and hoeing loosens without killing them. The only satisfactory way to eradicate them is very lightly to "point" all the bare soil to a depth of about 1½ inches. This, besides killing the weeds, leaves the surface of the soil smooth and neat for the winter. Beds of Spanish Iris must be very carefully examined, as the growths are now active and near the surface. Where the lines are not clear, it would be better to wait a few weeks until they appear.

Carnations should be heavily dusted with soot after showers. This will ward off the attacks of small birds; but where pheasants abound, close netting is the only sure method of preserving the plants. Protective covering for Roses and other tender shrubs should be collected ready for use. Bracken or branches of Beech, with firmly-attached, dried leaves, and boughs of Spruce Fir, are serviceable, and for winding round stems and protecting very small plants there is nothing better than loosely-made ropes of straw.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

MAXILLARIA.—This genus contains a large number of species, but many of them, on account of the small size of their flowers, are not worthy of cultivation as decorative plants. The following species are amongst the best and most generally grown:—*M. Sanderiana*, *M. luteo-alba*, *M. splendens*, *M. Turneri*, *M. venusta* and *M. grandiflora*; the last-named species is a very desirable Orchid for blooming during the present season, and the flowers are deliciously fragrant. These plants are all of evergreen habit and, as a rule, free-flowering. A well-ventilated, cool, intermediate atmosphere meets the requirements of these Orchids the year round, and pot culture is the most suitable for all except *M. Sanderiana*. Employ teak-wood baskets, but do not insert any crocks for drainage, as the flower-spikes that usually push horizontally from the base of the pseudo-bulbs are sometimes thrust through the soil in a downward direction. Good fibrous peat, *Osunda* fibre, and *Sphagnum-moss*, in equal proportions, form the most suitable rooting medium. The roots, in most cases, being somewhat large and fleshy, it is well to add plenty of crushed crocks and charcoal to the compost, using the materials in as rough lumps as possible consistent with the size of the pots. Drain the latter well, potting the plants firmly, and always endeavour to repot the plants when new roots can be seen pushing forth from the developing pseudo-bulbs. As long as growth continues, and until the pseudo-bulbs are quite finished and hard, the water supply must be kept well up, and the roots never allowed to dry for any length of time. During the resting season, the less they have the better, so long as the pseudo-bulbs remain plump, but these must not be allowed to shrivel. The worst enemy of *Maxillarias* is red spider, the foliage being very subject to attack, especially if the plants are growing in too high a temperature, or in an atmosphere at all inclining to the dry side. *M. tenuifolia*, one of the oldest and best-known species, has a habit of growth different from that of the species named above, the pseudo-bulbs occurring on erect, wiry rhizomes. The culture should be similar to that already described, except that in the case of this species care is necessary not to allow the pseudo-bulbs to become weakened owing to their being out of reach of the compost.

MASDEVALLIA TOVARENSIS.—Few white-flowering Orchids for winter blooming are more useful for cutting than this *Masdevallia*. It is so free-flowering that it is well worth growing for this purpose alone, besides which the flowers are very attractive on the plants, the white blooms and deep-green leaves contrasting very prettily. During the growing season, and through the summer and early autumn, the plants can hardly be kept too cool; now the flowers are forming they should occupy a house where the night temperature ranges from 50° to 55°. When the flowers are fully expanded, a drier atmosphere is necessary to preserve the delicate beauty of the blossoms. The winter temperature for this species ought not to fall much below 50°, as in a very cold house the leaves are apt to spot badly.

CŒLOGYNE.—The species *C. cristata*, and its varieties *alba* and *Lemoniana*, having now completed their season's growth, the plentiful supply of water hitherto afforded the plants should be reduced. From now onwards until after the flowering stage is over the rooting material, whilst never being allowed to become quite dry, should be kept just moist enough to preserve the pseudo-bulbs in a plump and healthy condition. Henceforward, the plants should be afforded all the light and air possible, and a

cool, intermediate atmosphere. In such a house the flower spikes will be retarded, which has a great advantage when cut flowers are in demand during winter, as a succession of flowers can be kept up for a considerable length of time by removing a few plants at intervals into a warmer house. Any specimens which were made up last spring should not be allowed to flower, as it usually takes two seasons to re-establish such plants and make them fit for flowering.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

STOVE FERNS: PROPAGATION.—Many Ferns may be propagated at this season of the year, a case in point being the beautiful *Nephrolepis Marshalli compacta*, a new and distinct variety. This may be readily propagated, both by the stolons and by division when these have already rooted in the pots. We have just broken up several plants of this Fern in order to increase our stock for next season. We divided the plants, and re-set the divisions in quite small pots. The pots were then plunged in fibre refuse in an improvised frame over some hot-water pipes, and covered with the top of a square hand light. I hope by-and-by to repeat the operation, and thus to secure a plentiful supply for decorative uses in less than six months. The claims of this variety, and others of the new forms of *Nephrolepis*, do not so far seem to have been sufficiently recognised. They are extremely attractive plants, and are always much admired when used for decoration, whilst they are by no means tender. It is possible to increase many varieties of *Asplenium* and *Davallia* in a similar manner; the *Aspleniums* from a single frond, and the *Davallias* from the creeping rhizomes which are easily divided.

SEEDLING FERNS.—These will be easily obtainable at this season, and all those should be secured which are likely to be of decorative use. For instance, if the fernery itself is in need of replenishment, the opportunity should be taken of pricking off the seedlings or placing them in small pots.

INCREASE BY MEANS OF FERTILE FRONDS.—Note should be taken of any plants which it is desirable to increase by spores. The methods by which the operation can be performed are many and varied; for example, taking the fertile fronds and pegging them upon sods of peat, laying them upon the soil in pots already containing Ferns, sowing the spores in pots of sandy soil, &c.; or, if it is desired that the Ferns should cover a wall, fronds should be taken from a plant which is known to favour such a position and fixed upon a damp wall. *Adiantum Capillus-veneris* is a Fern of this kind; we have it here thriving well in a forcing pit, and we could get from it a large supply if necessary.

TREE FERNS.—After the trying season we have just experienced, some Tree Ferns will be liable to attacks of thrips. On the appearance of this pest the plants must be at once fumigated, preferably making an application on each of three alternate nights. Meantime, the use of the syringe should be discontinued, or the good effects of the fumigation will be marred. All Ferns should be watched to see that the roots do not suffer for want of water.

DECIDUOUS FERNS.—Some of these are of considerable value. *Davallia bullata*, *Leucostegia immersa*, *Adiantum venustum*, *Lygodium scandens*, and several others are of this nature; but the fact of their taking little space during the resting period should not be allowed to lead to neglect or want of notice, as they require keeping moist and moderately cool. At this season it will be safe to remove the fronds from these Ferns, clearing away any scale insects that may be present.

FERNS THAT NEED EXTRA CARE.—All the *Gleichenias* may be classed under this heading, but if they are well looked after and kept moist and free from insects, they will repay all the care given them. It is advisable to top-dress the soil, thus covering any rhizomes which may have grown above it. The *Gymnogrammes* should also be the subject of special care, and should not on any account be allowed to become too dry.

FRUITS UNDER GLASS.

By E. BARKER, Gardener to the Hon. Viscount GIBBS, Ashdown House, Hertfordshire.

STRAWBERRIES.—The plants established in pits for forcing at varying intervals during the ensuing months should by this time have developed good crowns, and where the runners were procured in the first instance from plants unaffected by the drought, they are highly satisfactory. Various means are employed for protecting Strawberry plants during the winter months, but to my mind the best is to stand them closely together in a skeleton or shallow frame, the pots plunged to the rims either in leaves or ashes to protect them from splitting during frosty weather. During periods of rain they may be given the further protection of glass lights. Make quite sure that the plants are placed on a firm base, such as one formed of cinder ashes.

CHERRIES.—The earliest house of these fruits may now be got into readiness for starting by having the woodwork and glass thoroughly cleansed and attention directed towards the border. The planting or shifting of trees should be done without delay. It should be remembered that excellent fruit is obtained under glass from cordon trees. The soil best suited to Cherries is good loam of a calcareous nature, and if this is lacking, a plentiful supply of mortar rubble should be incorporated, and failing that a liberal addition of coarse road grit. An important item in their culture is the provision of perfect drainage for the roots, and the avoidance of borders of too great a depth. From 2 to 3 feet will in most cases be ample, as during the growth of the fruit any stimulants that are necessary can be afforded. The surface soil of old borders should be removed and a top-dressing added of chopped-loam, lime-rubble, wood-ashes and a sprinkling of a reliable fruit manure. Any necessary pruning should be done beforehand, but if proper attention was paid to stopping the growth of the wood last year, matured only an occasional shortening will now be needed. This is of great importance, as nothing is more fatal to Cherry trees than a too free use of the knife. Examine the ties, and remove those that have become too tight on the growths. Stout growths should be protected by the addition of a small, neat but effective piece of cloth or shred before effecting the ties to prevent injury to the bark. Admit a free circulation of air day and night.

FIGS.—Permanent trees are specially apt to become too thick in growth, and whilst the tree is dormant it is a good plan to rigorously thin out the old wood as much and as near to the base as possible. To have the tree well balanced with young wood should be the aim of every grower, and nothing is to be gained by overcrowding. Care must be taken that ties are not made too tightly, as the wood swells very rapidly and growths are soon injured. For the majority of the growths, fine tarred string is preferable. Few fruit trees are more susceptible to the attacks of mealy bug than the Fig, therefore every means should be taken to destroy this pest whilst the trees are dormant, but though the pest may be lessened, unless drastic measures are taken, it is almost sure to reappear again when the houses are closed. After the wood has been thoroughly washed, extra care should be taken that the whole of the rubbish and surface soil are removed, and all hiding places painted with methylated spirits.

THE HARDY FRUIT GARDEN.

By W. HERBERT WALKER, A.C.S.I. Christ Church, Devonshire College, Devon.

REMOVING TREES.—The removal of large fruit trees from one position to another is frequently found to be necessary for various reasons which need not be enumerated. If the operation is carried out carefully it usually causes a tree which has been growing too vigorously to enter upon a more fruitful state. In the carrying out of this kind of work, every care should be taken not to damage the roots or branches more than is necessary, lifting the tree with as many roots, and as large a ball of earth as possible. Commence operations by digging out a trench to the depth of the soil or border at not less a distance than 6 feet each way from the stem of the tree. When the trench has been dug out, loosen and remove a portion of the soil which is on the upper side of the general mass of roots, using a garden

fork for that purpose, after which a portion of the soil must be removed from the under side, which is best done by undermining the roots, and in that way loosening and disentangling them from the ball of earth, to the desired distance from the stem of the tree. Great care should be taken not to bruise any of the remaining roots, pruning with a sharp knife close up to a lateral root any that it may be found necessary to remove. When the tree has been thus loosened, the roots and branches should be tied carefully into position to prevent injury during transit, and the entire ball of earth wrapped in mats or sacking, securely tied, to keep the whole mass intact during removal. In this way the tree may be safely removed to the place where it is to be replanted, with every chance of success. The border in which the tree is to be planted should have been previously prepared according to directions given in a former calendar. Let the hole be dug out so large that the roots may be fully extended, and so deep that the upper layer of roots will be covered with soil to a depth of not more than 5 inches. The tree should be placed high enough to allow for the settling of the soil, so that the roots may finally be at their proper level with the rest of the border. Whilst planting operations are going on, care should be taken that the soil is worked well in amongst the roots in their respective layers, so that no hollow places are left. After filling in, the whole should be moderately pressed down by carefully treading over the surface, and the tree well watered in, afterwards applying a good mulching of half-decayed stable manure. The end of October, or early in November, is a most seasonable time of the year for doing this kind of work for almost every class of fruit tree, and unless the weather should prove unusually dry for the time of year, trees so treated will not require more water at the roots until the following spring or summer, when it may become necessary. The upper parts of the trees should, however, be kept moist for a few days after removal by frequent syringings, that is unless the weather be showery. Regarding the pruning of the branches at the time of removal, but little is necessary, beyond the removal of any shoots that may have been damaged. When a tree is not in a sickly or weak condition, it is better not to shorten the branches, and if a tree can be so managed as to do well, whilst retaining its entire head, it is better not to resort to the practice of shortening the branches. Healthy trees treated as described, generally bear a crop of fruit the following summer, whilst over luxuriant trees, by reason of the check they undergo, are brought into a fruitful condition.

THE KITCHEN GARDEN.

By JOHN DUNN, Retired, Carlton Foreman, Royal Gardens, Nottingham.

LETTUCE.—Late-planted Lettuce in the open garden should be lifted before there is any risk of injury by frost, and placed in cold pits, such, for instance, as were recently occupied by Beans or similar crops. Lift the plants carefully, retaining a good quantity of soil about the roots, and after they are planted, give them a plentiful supply of clear water. After they have begun to grow, the lights should be removed until frosts occur, when they may be taken off in the day, but should be replaced each night. Lettuces raised from seed in September may now be transplanted in a south border, where they should survive the winter, and come into use early next season. Sparrows are sometimes found to be troublesome to this crop, but frequent light dustings of soot will render the plants unpalatable to the birds, and also preserve them from slugs.

BEET.—The latest sown Beet should be lifted as soon as possible, and great care should be exercised in this operation that the roots are not injured by the breaking or scratching of the skin, or the Beet will suffer in colour when it is cooked. The roots should be stored in a dry, frost-proof shed, with a little dry sand worked in among them, in order to keep them plump.

TOMATOS.—Plants intended to produce ripe fruit early in April will now be ready for potting into 4-inch pots in which they should be grown until the end of November. The pots should first be washed and carefully crocked, then a compost prepared of sandy loam three-parts, leaf-mould one-part. The leaf-mould should be sweet and such as has never been overheated. Pot the

young seedlings moderately firm, placing them within a few inches of the roof-glass in some pit which can be kept closed for a few days until the plants commence to make fresh growth, when air should be admitted to keep them of sturdy habit. Water the plants carefully, and protect them from cold draughts. The atmospheric temperature at night need not exceed more than 50°. Those plants from which supplies are expected during winter should be kept in a temperature of 55°, admitting air as much as practicable. If the plants are allowed to become very dry at the roots, it will be found that many of the fruits will split later when water is applied. Weak manure water may be given to the plants whilst the fruits are green.

PARSLEY.—Plants in pits which are intended for use during rough weather should be picked close to the crowns in order to induce the plants to produce short stocky leaves which will stand the winter. Hoe the soil between the plants and give slight dustings of soot. The plants should be left uncovered as late in the season as possible, only replacing the lights when frost or snow is expected. Overgrown Parsley in the open garden should be divested of all decaying foliage. Keep the ground free from small weeds by the frequent use of a Dutch hoe between the rows.

CABBAGE. The earliest plantation of Cabbages for spring use will be making good progress, and the ground should be hoed frequently while fine weather lasts in order to destroy all small weeds which make their appearance at this season. Fill up all blanks in the rows by taking plants from the seed-bed, and dust all the plants freely with lime in the early morning late at night, while the slugs are about. If any young plants are left over they should be picked out 4 inches apart in beds to make fresh plantations in spring.

THE APIARY.

By CHAS. S.

TEMPER AMONG BEES.—There is an idea prevailing that bees are desirous of inflicting pain upon man, whereas they are lovable creatures, and well worth close study. It is by noticing when they resent us interfering with the internal economy of the hive that we can take precautions to avoid our wills clashing with theirs. The best time to manipulate a colony of bees is during the middle of the day, when the great bulk of the bees are foraging, and the worst is just after a heavy thunder shower, when all the nectar has been washed out of the flowers, and the bees are consequently doing nothing. Let the over-anxious endeavour to do anything among the bees during this interval and he will pay dearly for it. Again, at the end of the season some beekeepers are so foolish as to leave frames, after extracting, in the vicinity of the hives; it is dangerous then to approach the hives, and if a road be near passers-by may also suffer. Bees then seem perfectly crazy, and it is useless to go near them until the commotion has subsided, and the dripping frames are either emptied of their sweets, or night has come, and the frames have been removed. This feeding on honey in the open always incites to robbing, whereas syrup-feeding or pea or other meal-feeding does not cause any trouble.

PURCHASING BEES.—The present is not a good time to purchase bees in skeps for transferring to bar frame hives next spring. The combs now are rather soft and very full of honey, if they are not they should be, if the bees are to winter well, and when the hives are overturned for carrying to their new site, the combs are very liable to break away from their bearings. When this happens many bees are often crushed, and possibly the queen among them. If bees are purchased now it should be on condition that they are permitted to remain upon their old site until next April, when the combs will be lighter and tougher, and consequently will bear a jar and overturning better.

WIND BREAKS.—Where an apiary is very exposed the present is an excellent time to plant either forest trees or evergreen shrubs or fruit trees on the north and east sides. The evergreen especially would afford ample protection in a few years. A piece of netting work may be covered with plants that ruble well and form at the same time a pretty division in the garden.

APPOINTMENTS FOR NOVEMBER.

- WEDNESDAY, NOVEMBER 1—
National Chrys. Soc. Exh. at Crystal Palace (3 days).
Bath Chrys. Sh. (2 days). Kent County Chrys. Soc.
Sh. at Pocklington (2 days). Forest Hill (3 days). Sh.
Pocklington Hort. Soc. Autumn Sh. (3 days).
- THURSDAY, NOVEMBER 2—
Torquay Chrys. Sh. Linnean Soc. meet.
- FRIDAY, NOVEMBER 3—
Soc. Nationale d'Hort. de France (Paris) Chrys. and
Fruit Exh. (10 days).
- SATURDAY, NOVEMBER 4—
Soc. Française d'Hort. de Londres meet. Wood Green
Chrys. Sh.
- TUESDAY, NOVEMBER 7—
Roy. Hort. Soc. Com. meet. (Lecture at 3 p.m. by Mr.
Jas. Hudson, on "The Culture of the Fig in Pots.")
Hort. Club Dinner and Meeting. Birmingham & Mid-
land Counties Chrys. Sh. at Bingley Hall, Birmingham
(3 days). Scottish Hort. Assoc. meet. Southampton
Chrys. and Fruit Sh. (2 days). Oxford Chrys. Sh.
- WEDNESDAY, NOVEMBER 8—
Cardiff Chrys. Sh. (2 days). Dorchester Chrys. Sh. (2
days). Liverpool Hort. Soc. Chrys. Sh. at the Corn
Exchange (2 days). Weston-super-Mare Chrys. Soc.
Sh. (2 days). Finsley Chrys. Sh. (2 days).
- THURSDAY, NOVEMBER 9—
Exeter Chrys. Sh. (2 days). Putney, Wandsworth and
Dist. Chrys. Sh. at Putney (2 days). Haslemere Dist.
Chrys. Soc. Exh. Forest Gate and Stratford Amateur
Chrys. and Hort. Soc. Sh. (3 days).
- FRIDAY, NOVEMBER 10—
Bradford Chrys. Sh. (2 days). Leeds Paxton Chrys. Sh.
(2 days). Huddersfield and Dist. Chrys. Sh. (2 days).
Windsor, Eton and Dist. Chrys. and Hort. Soc. Sh.
Arlingham and Dist. Chrys. Soc. (2 days).
- MONDAY, NOVEMBER 13—
United Hort. Benefit Soc. Com. meet.
- TUESDAY, NOVEMBER 14—
Ulster Hort. Soc. Sh. (2 days). Saltaire, Shipley and
Dist. Rose Soc. Ann. Meet. Plymouth Chrys. Sh.
(2 days). Chester Paxton Soc. Ann. Meet. Chrys.
Sh. (2 days). Belfast Chrys. Sh. (2 days).
- WEDNESDAY, NOVEMBER 15—
Newcastle & Dist. Chrys. Soc. Exh. (2 days). Buxton
& Dist. Chrys. Sh. Woolton & Dist. Chrys. Soc. Sh.
- THURSDAY, NOVEMBER 16—
Scottish Hort. Assoc. Chrys. Sh., Edinburgh (3 days).
Newport (Isle of Wight) Chrys. Sh. Linnean Soc. meet.
Shedfield Chrys. Soc. Sh. at the Corn Exchange
(3 days).
- FRIDAY, NOVEMBER 17—Bolton Chrys. Sh. (2 days.)
- MONDAY, NOVEMBER 20—
Nat. Chrys. Soc. Executive Com. meet.
- TUESDAY, NOVEMBER 21—
Roy. Hort. Soc. Com. meet. (Lecture at 3 p.m. by
Mr. E. White, on "The International Horticultural
Exhibition, 1912.")
- FRIDAY, NOVEMBER 24—
Aberdein Chrys. Sh. (2 days). Hawick Chrys. Sh.
(2 days).
- WEDNESDAY, NOVEMBER 29—
Irish Gard. Assoc. & Bruey Soc. meet.
- THURSDAY, NOVEMBER 30—
Roy. Hort. Soc. Colonial Exh. (3 days).

AVERAGE MEAN TEMPERATURE for the ENSUING WEEK
deduced from observations during the last fifty years
at Greenwich—46° F.

LOCAL TEMPERATURES.
LONDON: *Herberts, October 28* (6 a.m.) Max. 55°;
Min. 38°.

Gardeners' Chronicle Office, 41, Wellington Street,
Covent Garden, London W.C.2, *October 28*
(10 a.m.): Bar, 29.4°; Temp. 51°; Weather—
Dull.

Provinces, *October 28*: Max. 18 Oxford
Min. 35° N. of Scotland.

SALES FOR THE ENSUING WEEK.

- MONDAY—
Cochrane Plants, Trees, Conif., Hvy. Agr., at Bloom
House, Bromhouse Road, Fulham, S.W., by Protheroe
& Morris, at 11.
- MONDAY, TUESDAY, WEDNESDAY, THURSDAY
AND FRIDAY—
Dutch Bulbs at Protheroe & Morris's rooms, at 10.30.
- MONDAY, WEDNESDAY AND THURSDAY—
Rose trees, Rhododendrons, Conifer, Bulbs, Lillies,
Rex, at Stevens's Auction Rooms, 38, King Street, Covent
Garden, London, W.C., at 12.30.
- WEDNESDAY—
13th Annual Sale of Nursery Stock, at Shortland's
Nursery, Sheppards, by order of Mr. J. Bryant, by
Protheroe & Morris, at 11.
Roses, at 12.30; Palms and Plants at 5; at 67 & 68,
Cheapside, E.C., by Protheroe & Morris.
Palms, Bay Trees, Azaleas, &c., from Ghent, at Stevens's
Auction Rooms.
- THURSDAY—
Nursery Stock, by order of the exors. of Mr. B. F.
Slowcock, at Upton Court, Slough, by Protheroe &
Morris, at 12.
- FRIDAY—
Nursery Stock at White Hill Nursery, Crowborough,
by order of Mr. H. Welfare, by Protheroe & Morris,
at 12.
Orchids in variety, at 67 & 68, Cheapside, E.C., by
Protheroe & Morris, at 12.15.

International
Exhibition:
Charges
for
Admission.

The high prices, fixed by the Directors, for admission to the International Exhibition of 1912, have been the subject of a certain amount of adverse criticism, both in these columns and those of our contemporaries.

So far as we may judge from the correspondence which has been addressed to us objection is taken to the original prices on three grounds: first, that the charges of admission for the general public are so prohibitive as to be calculated to prevent many people from visiting the Exhibition; second, it is urged that professional gardeners should receive considerable concessions in order that large numbers may avail themselves of the instruction and enjoyment which the great Horticultural Exhibition will provide for them; third, that Fellows of the Royal Horticultural Society are entitled to greater consideration than is vouchsafed to them under the original scale of charges.

We will deal with these claims in the order in which we have stated them. With respect to the general public, the revised prices of admission, given in the official communication printed on another page, make very considerable, albeit conditional, reductions on those originally proposed. The prices of admission for the first five days are to be reduced by one-half for all who visit the Exhibition after 5 o'clock. Inasmuch as the Show is to remain open until 10 o'clock, visitors who take advantage of the lower rate will have five hours in which to inspect the exhibits. We are of opinion that the concession will go a long way to satisfy those who have urged a reduction of prices, though whether it satisfies them completely will depend on the weight they attach to the arguments urged by the Directors in support of their decision to maintain the original prices for admission before 5 p.m. on each day. Those responsible for the Exhibition point out that the space at Chelsea is much less than could have been utilised; in short, the prevalent idea that the site at Chelsea provides ample room turns out to be erroneous. This being the case, it is the bounden duty of the Directors to prevent by all means in their power such overcrowding as mars, for example, the Temple Shows. Further, on the first day, no little time will be taken up by the opening ceremonies: the work of the large International Jury must also be performed on that day; and during such time as is left before 5 o'clock it should be possible for the foreign guests and those most interested in the exhibition, to view it in detail and in some measure of comfort. But of all the arguments adduced to justify the decision of the Directors, the most weighty is that they must bear the heavy financial burden imposed by the Exhibition.

The sums of money which they must pay away before the Show opens are very large, and it is not only their right, but their duty, to take measures to ensure that the 1912 Exhibition shall be a financial success. They have to consider not only the general public, but also their tacit obligations to the guar-

antors to make income and expenditure at least balance. All things considered, we think that they are performing this difficult task with a just sense of equity. It would doubtless be a popular thing to lower prices all round; but if this were done, and financial loss were the result, the interests of horticulture would be seriously impaired.

Let us turn now to consider the second ground of complaint, that raised on behalf of the professional gardeners. The claims of the professional gardener for reduced prices are far greater than those of the general public. The success of the Show depends ultimately on him. The exhibits are in no small measure the products of his skill, and his judgment of the value of the exhibits will have a lasting influence on the development of horticulture. Therefore, he, of all men, should be welcomed to the Exhibition, and anything which might tend to hinder him should be removed. We are glad to say that this much is fully recognised by the Directors, who announce that very substantial reductions in the price of admission will be made to gardeners. After the first day, on which no reduction is to be made for gardeners, the prices for admission are to be reduced to one-quarter for the four following days; admission on the second day will be 5s., on the third day 2s. 6d., and on the fourth and subsequent days 1s.

Till the day arrives when finance ceases to vex the mind of man, we do not think that organisers of exhibitions such as this International Show could venture on proposing more liberal terms.

Lastly, the concessions which are to be made to members of the R.H.S. have not as yet been announced, and all we may say is that they will be announced at an early date and simultaneously in the various horticultural journals.

Intelligent anticipation may, however, permit the reflection that the claims of Fellows of the R.H.S. for considerable reductions are less substantiated than those of professional gardeners. It is true that the R.H.S. gave a generous donation of £1,000 towards the expenses of the exhibition; but it is to be observed that this was a donation and not an advance payment for tickets on behalf of the Fellows. If the donation is urged in support of a claim to reduction in the price of admission, then the reduction due to each Fellow amounts to something less than two shillings for one day only. We are aware that Fellows may urge their case on other grounds, and that those grounds may be valid; but the cost of the Exhibition has to be met, and we trust that this hard fact will be taken into consideration by all parties when forming an opinion of the concessions which have been, or are to be, granted, and that all will do their utmost to make the Show a brilliant success.

ARTS AND HANDICRAFTS.—We are informed that an Exhibition of Arts and Handicrafts will be held by *The Englishwoman* at the Maddox Street Galleries from Wednesday, November 1, to Tuesday, November 14, 11 a.m. to 6 p.m. It will be opened on November 1 by The Lady FRANCES BALFOUR at 3 p.m. There will be a Gardeners' Stall, arranged by women gardeners.



THE FIRST HYBRID ARISTOLOCHIA.
ARISTOLOCHIA KEWENSIS (A. BRASILIENSIS A. TRILOBATA).

"THE BOTANICAL MAGAZINE."—The issue for October contains illustrations and descriptions of the following plants:—

LISSOCILLUS STYLITES, tab. 8397.—This mauve-colored species of Orchidaceæ from Southern Nigeria, was described by the late Professor REICHENBACH in 1878. It grows in hot and moist localities, and it is suggested that it might be cultivated in this country by planting it in a large pan of peat and Sphagnum moss, half submerging the pan during the growing season in a tank suitable for Victoria regia, with the water at a temperature of about 75° Fahr. The plant requires to be kept in a fairly dry condition for two or three months after the leaves have colored.

APHELANDRA FASCINATOR, tab. 8398.—This brilliant stove plant is described by Dr. STAFF. The species was discovered in Colombia in 1872, and was first described from a plant in Mr. LINDEN's nursery at Brussels and flowered in 1874. The form now figured was collected in the mountains of Colombia by Mr. D. BOSSMAN when travelling on behalf of the Royal Horticultural Society between 1866 and 1868. A. fascinator is one of the most useful and prominent members of the Acanthaceæ, being easy to grow in a warm, moist greenhouse, where it flowers abundantly in winter. Propagation is effected by cuttings which are rooted in spring.

SPIRÆA WILSONII, tab. 8399.—Mr. BEAN describes a new species of Spiræa, collected by WILSON in Central China. S. Wilsonii most nearly resembles S. Henryi, but S. Henryi has more frequently and more coarse toothed leaves, which are slightly lustrous and less pubescent. The corymbs are laxer with pilose pedicels and a hairy calyx tube. Spiræa Wilsonii, moreover, flowers a fortnight earlier than S. Henryi. The flowers are white.

RHODODENDRON AMBIGUUM, tab. 8400.—Mr. BOTTING HEMSLEY describes this pure yellow-flowering species of Rhododendron, introduced from Western China by Messrs. J. VEITCH & SONS. It is described as being near to the Himalayan species, R. triflorum. The plant is quite hardy.

BUDDEIA CHINENSIS, tab. 8401.—This Chinese species of Buddleia forms the subject of our Supplementary Illustration of the issue for April 1, 1911, p. 201, to which we refer our readers. The flowers are pale mauve with an orange-tinted eye.

GHEENT QUINQUENNIAL, 1913.—The projected programme of the Exposition internationale de Ghent in April, 1913, under the auspices of the Société Royale d'Agriculture et de Botanique de Gand, with the patronage of his Majesty the King of the Belgians, is already to hand—a little more than a year before the contemplated event. The schedule, which is a provisional one, provides 27 groups, comprising 780 classes, which provide for every important branch of horticulture. Orchids and new plants will be prominent features. A map is included, which gives a comprehensive plan of the buildings to be erected on the exhibition ground. The Horticultural and Fêtes Palace alone covers a space of 30,000 square metres, and the cost of erection will be 1,750 francs. Evidently no expense will be spared to make this exhibition one of the finest that has ever been held. The last section but one comprises various classes under the heading of "higher education in horticulture," and this is of special interest, as showing the advance of science in connection with such subjects as hybridisation, plant physiology, and plant diseases. Thus, one class will be for "A biological collection showing the adaptation of plants to dry conditions" (724); another "A collection showing the favourable influence of

mutual symbiosis on the germination of Orchids" (732). The study of such subjects should be encouraged in every way, and one of the best means consists in thus giving awards in open competition to those who have given most time and attention to these matters. It is to be hoped that the opportunity for long preparation, which the promoters of the Exhibition have provided by thus early publishing the necessary particulars, will enable a large number of horticulturists to participate in the show, and that an unprecedented success will crown the efforts of those responsible for the arrangements.

MOVEMENT TO ACQUIRE THE CRYSTAL PALACE.—A meeting was held at the Mansion House on the 23rd inst. to consider the question of the acquisition of the Crystal Palace and its grounds for the use of the public. A resolution moved by the LORD MAYOR, declaring that the Crystal Palace and its ground should be acquired for the public, and appointing a committee to make arrangements for an appeal for funds from the Mansion House, and to consider the most practical scheme for the future management and control of the Palace, was carried. A sum of £12,000 was promised, and when the amount has been increased to £20,000, the public appeal will be issued.

THE L.C.C.'S SURPLUS PLANTS.—At a meeting of the Education Committee of the London County Council on the 18th inst. the General Purposes Sub-Committee reported that, for several years past, it had been the custom in the autumn to distribute among the Council's schools about 40,000 plants for cultivation, consisting mainly of surplus bedding plants removed from the flower beds in the Council's parks. A similar number of plants was again available this year. The extra work involved in the selection, pruning, and packing of the plants had in past years been met by the temporary employment of additional staff, working under the supervision of the superintendent of the botany depot, as the staff of the botany depot is fully occupied. It was, therefore, decided to recommend the Council to engage an experienced gardener and three youths for this purpose.

PROPOSED GUIDES FOR KEW GARDENS.—The Times publishes an interview with Lieut.-Col. PRAIN on this subject. Lieut.-Col. PRAIN said he did not think there was any great necessity for such guides, for at the principal entrances to the gardens notices were posted indicating to visitors what were the sections most interesting and most worthy of a visit. The stranger who had only a limited time at his disposal could see at a glance what were the features of the gardens for the time being. All he had to do was to purchase a key plan, price twopence, and compare the letter and figure on the notice with the map. The Government would not agree to further grants from the Treasury for the purpose of paying guides. The expense would not be justified. Kew Gardens were entirely dependent on the weather for the number of visitors, and while for one or two months of the year there would be plenty for professional guides to do, for the greater period they would be practically idle.

"THE AMERICAN NATURALIST" for April, 1911, contains a second series of Dr. B. M. DAVIS's "Genetical Studies on *Oenothera*." This contribution deals with "Some Hybrids of *O. biennis* and *O. grandiflora* that resemble *O. Lamarckiana*." Until recently it was assumed that *O. Lamarckiana* was a wild species in the ordinary acceptance of the term, and Dr. DAVIS's *Material and Methods*, as Dr. DAVIS remarks, rests mainly on the behaviour of this plant under cultivation. In the *Mutationstheorie* of DE

VRIES the behaviour of *O. Lamarckiana* in giving rise to the so-called mutants is presented as evidence that new species have come into existence without the aid of natural selection, in which it is assumed to be typical of a species in nature. The question of the status of *O. Lamarckiana* has occupied the attention of Dr. DAVIS and other American botanists ever since the theory was first put forward. Nobody has succeeded in finding typical *O. Lamarckiana* in a wild state, and it is now supposed that it is a hybrid of garden origin. Dr. DAVIS has raised a large number of hybrids between *O. biennis* and *O. grandiflora* in order, if possible, to establish the parentage of *O. Lamarckiana*, and although his numerous experiments have not resulted in a hybrid identical with *Lamarckiana*, some of them are so exceedingly near that they must be classified with it. Dr. DAVIS will continue his experiments, and is sanguine of obtaining the evidence required to establish the origin of this interesting plant.

TOXIC PRINCIPLES AFFECTED BY CULTIVATION. It is generally recognised that plants, which, in the wild state, contain poisonous substances of a nitrogenous character, tend, under the influence of cultivation, to contain a smaller amount of these toxic principles. COMES, for example, has stated that if a plant, which, in its wild state, was of therapeutic value, be cultivated for several generations on manured and irrigated soil, it becomes in time quite useless, owing to the disappearance of the active principles. A familiar example is afforded by the Almond, the prussic acid-forming glucoside of which, always present in bitter Almonds, has disappeared from the cultivated sweet Almond. Conflicting statements have been made of late years as to the toxicity of different varieties of Phaseolus Beans, some of which have been proved to contain prussic acid in the form of a glucoside. Recently Messrs. SCURTI and TOMMASI, of the Rome Agricultural Chemical Experiment Station, have determined the effect of nitrogenous fertilisers on *Phaseolus vulgaris* and *P. multiflorus*, collecting and analysing the seeds in each case. Particular attention was directed to the amount of non-protein nitrogen, which is taken as a measure of the toxic principle. The results conclusively show the presence of a larger proportion of non-protein in the Beans from the unmanured plants. The application of sodium nitrate, for example, reduces the amount of toxic nitrogen in the seeds to about one-third of that present in the seeds of similar plants grown on unmanured soil.

ENGLISH MEADOWS AND UPLAND FARMS.—At WALKER's Galleries is an exhibition of water-colour drawings by ALICE FOWLER and FRANK FOWLER. The drawings of each artist are hung apart, and as the first-named shows, for the most part, English views of rural and garden interest, and the latter a series of Japanese and Indian sketches, they form, in subject, an agreeable contrast. Perhaps the Indian views by FRANK FOWLER show more of that quality and finish which is specially looked for in architectural drawings, such as his charming series of the wonderful white marble domes of the ever-fascinating "Taj Mahal," which he has depicted in the varying light and effects of "Morning," "Noonday," "Evening," "Night." But, on the other hand, ALICE FOWLER excels in the freshness of her colour and the free handling of that medium which is so easily "overworked" by the strenuous person; for "water colours," like pastry, need a light hand and heart in the making. And we must confess that English meadows and English skies have a charm of colour and delicacy of tone which cannot be eclipsed or even equalled by any Oriental magnificence in contrasted colour or unusual form. Simple studies of farm incidents delicately accented in

colour and form, such as her "Autumn Ploughing" in the early morning mist, with its restrained tinting and almost monochromatic effect, are worth many times more than the showy sketches set forth by the dabblers and dashers at the majority of the "one-man shows" to which we are accustomed. "Rising the Hill," again, is an interesting study of old-time ploughing. The men and horses are deftly silhouetted against the sky, and the warm, up-turned earth, cleverly accented by dark touches, which resolve themselves into birds as one gazes at this record of a phase of English labour which is fast becoming foreign and unfamiliar to English eyes. It remains to mention "The First Spring Day," in which a dark, Ivy-bound tree, with bare, red branches, stands out conspicuously in contrast to the pale, spring colour of the undulating meadow land, and the pale, warm tinting of the wind-blown clouds above it. The touch of silver-white on the blossoming Sloe trees strikes the true note of springtime. Another mood is touched by a low-toned sketch entitled "Home, Sweet Home." Twilight, a thatched cottage, warm, fire-lighted windows, a garden gate, flanked by tall Evening Primroses, opening their yellow hearts in welcome to the returning labourer, who lifts the garden latch, strike a far-off note of restfulness and peace—not echoed in Bond Street! *Mary L. Breakell.*

PUBLICATIONS RECEIVED.—*Board of Agriculture and Fisheries.* Leaflet No. 254: The Composition of Seaweed and Its Use as Manure. Leaflet No. 257: The International Agricultural Institute: Its Objects and Its Publications.—*Everyman's Library*, edited by Ernest Rhys.—*An Encyclopædia of Gardening*, by W. P. Wright. (London: J. M. Dent & Sons, Ltd.) Price 1s.—*Types of British Vegetation*, by A. G. Tansley. (Cambridge: University Press.) Price 6s. net.

SCOTLAND.

COST OF EDINBURGH PARKS AND GARDENS.

THE accounts of the City of Edinburgh for the year ending May 15 last have just been published. The expenditure of the parks and gardens is stated as £14,414 10s. 3d., and the revenue from rents of pasturage of public parks, bowling green, and golf-course dues, &c., as £2,632 17s. 1½d. In addition to the ordinary expenditure there is included under the heading of capital expenditure the sum of £921 15s. 7d. for new works at public parks.

THE WAVERLEY MARKET ROOF GARDEN.

It is proposed by the Parks Committee of Edinburgh Town Council to remove the railings between the garden on the roof of the market and Princes Street. This suggestion has been made for some time, and many will be glad to learn that it is likely to be carried through. A point which is now being considered is regarding what alterations may be necessary to the roof in consequence of the opening up of the garden.

A GARDEN SCHEME FOR THE CALTON HILL, EDINBURGH.

A SOMEWHAT extensive scheme is put forward for the improvement of the historic Calton Hill, Edinburgh, the prominent eminence which is a favourite place of resort for visitors, and is seen so conspicuously when looking towards the east end of Princes Street and Waterloo Place. The proposal is to improve the approaches to the hill and to lay out gardens. The subject has been broached at some of the meetings in connection with the forthcoming municipal election, and has, so far, been well received, although it remains to be fully considered by the council.

BAMBUSA FASTUOSA.

THE illustration at fig. 136 shows a very fine specimen of this Bamboo growing in a small front garden at Reading, and forming, for such a situation, a very striking and beautiful object. Mr. T. W. Henwood informed me that he planted it as a single growth about 12 years ago, after preparing a special station for it by digging out a load of soil and replacing it with new soil, enriched with an equal quantity of cow manure, which was mixed thoroughly with the soil. After planting somewhat firmly, it was liberally watered, and a top dressing of cow-

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(Continued from p. 287.)

HYBRIDS.

CAMPANULA PYRAVERSI.

Mr. F. CAYEUX, Seedsman, 8, Quai de la Mégisserie, Paris, described a new *Campanula*, the result of a cross between *C. versicolor* and *C. pyramidalis*. The hybrid to which he has given the significant name of *C. pyraversi* is fertile. Many of its characters are intermediate between those of the parents; amongst others,



FIG. 136. —BAMBUSA FASTUOSA.

manure applied about a week afterwards. A similar dressing was given every season for four or five years, and plenty of water has been supplied during the summer months. The exposure is east and north, protection being only afforded by the house on the west. At present the plant consists of a compact bunch of stout rods, each rod being over an inch in diameter and bearing foliage nearly 30 feet high. As will be seen, it is of more compact habit than most Bamboos, and, by its graceful growth and perfect hardiness, is peculiarly fitted for its position. *C. T. D.*

flower colour and diameter, number of flowers in each group on flower-stem, and so on. Other characters are those of one or other parent and persist; for example, the glands on the teeth of the leaves and prolonged period of flowering are paternal characters, yet other characters are new, namely length of petioles and radical leaves.

HYBRID PEAS.

Mr. Arthur Sutton gave an account of crosses between a wild Pea of Palestine, collected by himself, and the culinary Pea, *Pisum sativum*. The object of the experiments was to obtain evidence of specific identity of the wild with

the domestic Pea. Mr. Sutton found the wild Pea to be about 1 metre, and though it has green leaf axils, was found, when grown from seed at Reading, to bear unicoloured magenta flowers and olive-green brown-spotted seeds.

Crosses were made between the Palestine Pea and Pisum sativum and also between the former and P. arvense, which is sometimes considered to be a sub-variety of P. sativum.

In the case of the Palestine Pea the F_1 plants were sterile, but in four cases, two being crosses with P. sativum and two with P. arvense, F_2 and F_3 generations were obtained. The F_1 generation showed that colour is dominant, and that the colour was not uniform but "bicolor." As a result of the experiments it cannot be concluded that the Palestine Pea is a precursor of the commercial Pea, for, though certain among the hybrids proved fertile, yet the general characters of the Palestine Pea—coloured flowers, denticulate leaves, woolly hairs in the pods, character of seed—are very different from those of P. sativum.

The paper was illustrated by specimens of the seeds of the Palestine Pea and its hybrid progeny.

THE UNIFORMITY OF FIRST GENERATION HYBRIDS.

Mr. Gard, reporting the results of experiments with plants of the genus *Cistus*, drew attention to exceptions to the general rule that the first generation of a hybrid consists of uniform individuals.

In *Cistus* crosses the first generation consists of individuals which differ with respect to foliar and other characters. Further reciprocal crosses between *Cistus* are in some cases identical and in others not.

Professor Saunders showed that the types of plants obtained in the F_1 of *Cistus* crosses.

HYBRID TOBACCO PLANTS.

Mr. M. C. Bellair, Head Gardener at the National Palaces, recorded results obtained by crossing tobacco plants.

N. sylvestris pollinated by *T. tabacum* yields an F_1 exhibiting in most respects the characters of the latter species. The F_2 generation yields a number of types of which some are sterile, others feebly fertile. In F_3 plants resembling the two parents are obtained. Those derived from *Nicotiana sylvestris* and *N. tabacum* do not behave like the pure species. When crossed with one another they produce a large series of forms: giants, dwarfs, white, rose, red-coloured, and striped flowers.

THE ORIGIN OF CULTIVATED OATS.

Mr. L. Trabut reaches the conclusion that the Oats in cultivation are derived from several natural species. General opinion holds that the Oats of cultivation (*Avena sativa*) are derived from *A. sativa*.

A study of the Oats of the Mediterranean region has led Mr. Trabut to conclude that they are derived from *A. sterilis*. Other cultivated Oats are to be regarded as descended from *A. barbata*.

The general conclusion reached is that Oats of temperate and mountainous regions are descended from *A. fatua*; those of southern Oats are to be regarded as descended from *A. barbata*.

DOUBLE FLOWERS.

Miss E. K. Saunders, Newnham College, Cambridge, gave a résumé of her work on the genetics of double flowers. In Stocks, the doubles form neither pollen nor ovules, and are derived from seed produced by pollinating singles with pollen derived from single plants. Two types of singles exist, true singles and what may be called "double singles." These two forms, though indistinguishable, behave entirely different with respect to reproduction. The true singles yield seed, and are crossed to give the double singles, which give rise to both doubles and singles, and generally to more of the former than the latter.

From the behaviour of double-singles when crossed with singles, it is concluded that the character "single" is determined by the presence of two factors, the double character appears in the absence of one or other of these factors. The pollen of the double-singles (singles which, when crossed with singles, yield singles and doubles) is incapable of carrying one of the

other of the two factors which produce singleness. The whole investigation is of the greatest scientific interest, and shows how by patient experiment the most difficult cases may be found to conform with Mendelian law.

Incidentally it may be mentioned that Miss Saunders confirms to some extent the opinion which has been put forward often, that old seed gives a higher proportion of doubles than is given by fresh seed. This she attributes to the greater vitality of doubles. The suggestion made by Chate that seed situated at the lower part of the capsule gives a high proportion of doubles is not confirmed. If the former view turns out to be correct, it should not be impossible to rogue out the singles by artificial means, and so to secure seed giving doubles only.

"LEFT-HANDED AND RIGHT-HANDED" CEREALS.

Mr. R. H. Compton, Botanical Laboratory, Cambridge, has investigated the inheritance of "left-handedness" and "right-handedness" in the leaves of various cereals. As is well known, the leaf of Barley, Oat, Maize, &c., is, when young, so rolled that one edge covers the other. The rolling may be in one direction or the other, and hence the one may be termed right and the other left-handed. Breeding tests indicate that the character is not hereditary, the proportion of left-handed to right-handed leaves remaining constant, no matter whether the parent was left- or right-handed with respect to its leaves.

A similar conclusion was reached with respect to the spiral twist which characterises mature leaves of Barley and Oat.

THE PRODUCTION OF WHEAT OF HIGH BREAD-MAKING VALUE.

Dr. Charles E. Saunders, Cerealist to the Government Experimental Farms, Ottawa, gave an account of experiments conducted in Canada with the object of obtaining varieties of Wheat having both the qualities of earliness and high bread-making value.

The variety popular in Canada, Red Fife, gives good results, but is somewhat late in certain regions of Canada. Not one of the imported early Wheats has proved satisfactory, and hence it has been necessary to have recourse to hybridisation, and to determine by baking tests the value of the grain produced from the hybrids and their descendants.

Mr. Saunders dissents from the view that "strength" in Wheat is a simple Mendelian character. He holds that it depends on a number of factors, and that the behaviour of the quality "strength" with respect to heredity is as yet far from determined.

PARTHENOGENESIS.

Mrs. R. Haig Thomas contributed a paper on *Nicotiana* hybrids, in which inheritance of flower colour was described. In *Nicotiana glauca* and *N. glauca*, segregation of colour occurred in F_1 ; the reds selfed produced in F_2 reds, violets, and whites; the violets selfed gave violets and whites. In the course of her experiments Mrs. Haig Thomas has discovered that parthenogenesis occurs in several species and varieties of *Nicotiana*. She has also demonstrated a like production of fertile seed without pollination in *Oenothera biennis*.

GAMETIC COUPLING AND REPULSION.

Results of recent inheritance from the theoretical standpoint were announced by Mr. Bateson and Professor Punnett. As is well known, in the simplest case of a cross between plants differing in respect of two factors, the hybrid gives rise to gametes of four kinds, which are produced in equal numbers. In such a case the gametic series may be written thus:

$$1 AB : 1 Ab : 1 aB : 1 ab$$

In some cases, however, it has been found that certain kinds of gametes are produced in greater numbers than the others, and experiment has shown that the gametic series in such cases may be of any one of the following forms:—

$$3 AB : 1 Ab : 1 aB : 1 ab$$

$$7 AB : 1 Ab : 1 aB : 1 ab$$

$$15 AB : 1 Ab : 1 aB : 1 ab$$

and so on, the general expression being

$$(n-1) AB : 1 Ab : 1 aB : (n-1) ab,$$

These cases, in which the end terms of the series of gametes are greater than the middle terms have been spoken of as "partial coupling," the name implying the idea that the factors A and B are associated, or coupled, together in gametogenesis, so that they tend to pass both to the same germ cell. At the same time, other cases are known in which, to judge from the character of the offspring, the same two factors appear to be repelled from one another. The results obtained hitherto suggest that the repulsion is complete, and such that both factors never pass into one and the same gamete. Not long ago it was discovered that the occurrence of coupling or repulsion depends on the way in which the hybrid is built up, so that if a parent AB were crossed with a parent ab coupling occurs, but if the cross were made the other way—Ab × aB—the factors appear to be repelled from one another.

This year, Punnett's experiments with Sweet Peas, in which the characters concerned were sterility and a curious malformation of the flower (Cretin Pea) have shown that repulsion is not complete, but that the gametic series is $1 AB : 3 Ab : 3 aB : 1 ab$. Such a series of gametes would give a very small number (1 in 64) of offspring of the type ab. It is evident that the greater the discrepancy between the values of the middle and end terms of the gametic series, the smaller will be the number of recessives in F_2 , and it can scarcely be doubted that the supposed cases of complete repulsion really represent the formation of a gametic series of the form

$$1 AB : (n-1) Ab : (n-1) aB : 1 ab$$

where n has one of the higher values, 3, 16, 32, &c.

Thus we get an explanation of the occasional appearance of a single recessive plant in families exhibiting repulsion, a phenomenon which has hitherto been quite obscure.

It appears then that, in general, a dihybrid may produce gametes in any one of a series of forms, ranging from

$$1 AB : 1 Ab : 1 aB : 1 ab$$

on the one side, through

$$1 AB : 1 Ab : 1 aB : 1 ab$$

up to

$$1 AB : (n-1) Ab : (n-1) aB : 1 ab$$

Bateson and Punnett point out that the conception embodied in the terms "partial coupling," and "repulsion" is no longer justified, the phenomenon being more accurately described as a "reduplication of terms" in a series of gametes.

EXPERIMENTS AT BURBAGE.

Mr. Hurst gave an account of the extensive experiments which are being carried out at his experimental station at Burbage, Leicester.

These experiments are planned on a large scale and embrace many plants of commercial importance.

The object of experiments with Peas is to obtain pure lines (of homozygous forms) so that, as it is hoped, rogues will be eliminated from the strains finally chosen for distribution. Other plants in course of being investigated genetically by Mr. Hurst include Sweet Peas, Orchids, Roses, Rhododendrons, fruit and forest trees.

A number of papers dealing with other than the horticultural aspect of genetics was also presented to the conference.

Obituary.

Mrs. TURTON. Readers of the *Gardener's Chronicle* will sympathise with Mr. Thomas Turton, gardener at Sherborne Castle, Dorset, in the loss he has sustained in the death of his wife. Mrs. Turton died on the 20th inst., and was interred at Sherborne on the 23rd. She leaves a family, the members of which are mostly grown up. I have known Mr. Turton since 1872, and he is greatly respected. H. J. C.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.

(See also article on page 306.)

We are informed in an official communication that, in consideration of numerous requests from representatives of the horticultural world, the Directors of the Royal International Horticultural Exhibition have decided to provide special facilities for professional gardeners, and also to reduce the charges for admission of the general public.

The prices originally fixed for the eight days of the Exhibition are as follow:—

1st day	2s. 0d.
2nd	1 0
3rd	1 0
4th	5 0
5th	2 6
All subsequent days	1 0

The following tariff has now been arranged:—

1st day, until 5 p.m., as before	2s. 0d.	after 5 p.m.	1s. 0d.
2nd	1 0	10 0	
3rd	1 0	10 0	
4th	5 0	2 6	
5th	2 6	2 6	
Throughout the day on all subsequent days	1 0		

The special rates for professional gardeners are:—

2nd day	5s. 0d.
3rd	2 6
4th and all subsequent days	1 0

which involve, as will be seen, a very great concession.

The Directors have retained the original prices for admission during the greater part of each day, chiefly on account of the limited space at their disposal. The actual size of the ground is 21 acres; but at least seven acres are occupied by trees, shrubs, &c., which leaves only 14 acres for tents, exhibits, offices, &c., &c. Applications for space have, naturally, been very numerous, and ground has to be allotted for paths, promenades, and so forth. It must also be remembered that, apart from the visitors themselves, there will be a large number—say, 3,000—of officials and servants, including jury-men, exhibitors, attendants, &c.

It is gratifying to be able to announce that in the horticultural section of the Exhibition, British growers have made a very ready response to the invitations addressed to them. Foreign floriculturists from most parts of the world are also applying for exhibition space, so that the international character of the show will be well maintained.

Among the most recent donors of special prizes are Messrs. Clay & Sons, who are offering for competition in the Rose class, a silver gilt Rose bowl, valued at 80 guineas.

Turning to the interesting subject of horticultural sundries, this section is likely to exhibit a completeness never before witnessed in this country. The exhibits will be given prominent positions in the grounds, both under cover and in the open. In every case, the awards will be made by special jury-men; thus, in the classes for sundries, only men who have a thorough knowledge of these matters will officiate.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE RECENT FRUIT SHOW.—I was very pleased to see that someone had raised the question of judging at the recent Fruit Show. Being an exhibitor at this particular show, one does not like to be the first to complain, but the points raised by A. (see p. 293) did not affect me in the least. I noticed his point, in the class for "Any other cooking variety," that the Blenheim Pippin was awarded 2nd and 3rd prizes respectively. A fact of this kind should not pass the eye of any keen judge, and I consider it detrimental to other exhibitors who, probably, had as good dishes of this particular Apple as the exhibitor who gained an award, but lost their chance by having exhibited according to the rules of the Society. There is one yet more important point which needs urgent attention, namely, that the judges intermingle with the exhibitors during the time of staging the exhibits. This was freely done at this particular show. Some will probably

say, the best is the best. I quite agree, but should two exhibits run each other very close, as did some of the exhibits there, the judge would naturally lean towards a friend's exhibit. I have judged at several shows, and have always on the arrival at the show been conducted to the secretary's tent, there to await the report of the staging stewards that the exhibits were ready for judging, and I think that the R.H.S. will do well in future to see that this practice is followed at the Society's fruit show. *Fairplay.*

FRUIT MANUAL.—*Yorkshire Gardener*, p. 272, voices the wish of many fruit-growers, namely, that an up-to-date fruit manual should be compiled. The necessity for an authoritative work was exemplified at the recent R.H.S. Fruit Show. In the "single-dish" classes for Pears, among several dishes of the variety Thompson exhibited, was one apparently somewhat out of character, the name of which the judges in their wisdom crossed out. Among the experts who were asked to give their opinion were the two well-known veterans, namely, Mr. Charles Ross and Mr. H. J. Clayton, the latter formerly of Grimston Park, Yorkshire. *Willmot H. Yates.*

NARCISSUS FLY (MERODON EQUESTRIS).—Until the Rev. W. Wilks gave his experience some time since (I believe in the *Gardeners' Chronicle*) of the Narcissus grub being found in bulbs of Lilies, I am not aware that any authentic information existed of the pest in question attacking other than Anaryllidaceous plants. There is a note on the subject in the present *Journal of the Royal Horticultural Society*, p. 123. I have repeatedly found the larvae of Merodon in Dutch cultivated bulbs of Galtonia caudicans, the earliest instance, so far as memory serves me, being about 22 years ago. At no time have I attempted to breed out the flies, for the grub being well known to me I took the same precaution then as now of putting all affected bulbs into the fire. There is, therefore, every reason for cultivators of bulbous plants of all descriptions to be on the watch for this pest. In the case of the Daffodil, discolouration of the outer tissues of the bulb is a not infrequent indication of the presence of the grub, though it may be as frequently due to the presence of the bulb mite, Rhizoglyphus. *E. H. Jenkins, Hampton Hill.*

CATTLE POISONED BY LABURNUM.—Some ten days ago I cut down two Laburnum trees, and they fell into my neighbour's field. I did not have them gathered up immediately, and during the night cattle ate of the tops, which contained foliage and seed pods. Three days later the farmer found his cattle unable to stand. There are a good many Oak trees in the field, and we both thought that the cause of the trouble was Acorns. One cow in calf died; a postmortem examination was made, and to our surprise, no Acorns were found. The inside of the beast was quite black. The farmer, not satisfied, sent for the veterinary surgeon, and he said that the beast had been poisoned. The second beast now is dead, a bull, and two more yearlings (bullocks) are down. The veterinary surgeon does not give any hopes of their recovery. The veterinary tells me that the trouble is caused by the unusual season. Had there been any grass for the cattle they would not have eaten so liberally of the Laburnum, and, secondly, had there been grass it would have passed through them. Vegetation, having no nature in it, caused the stoppage, and then the Laburnum seed caused death. *Gardener.*

SEEDLING APPLES.—Referring to Mr. Bunyard's interesting article (see p. 293), I have two new Apples, fruiting for the first time this year, raised from seeds of Fearn's Pippin seven years ago and grafted on to the Crab stock. The seedling trees, from which the grafts were taken, were exactly as Mr. Bunyard describes, and I feared they had reverted to the Crab; but, when grafted, they both grew satisfactorily. Neither is quite the same as the female parent, but one largely partakes of that parent, both in colour of blossom and in fruit. The other differs greatly both in blossom and in fruit. I am, by pruning, getting the "free" stocks to grow in the way usually desired. There grew a third sort from the same sowing of pips, but it has not fruited yet. The foliage shows it to be distinct from the other two and from the parent. *S. Jackson, Clifton House, Kingsland, Shrewsbury.*

RIPENING OF WOOD IN APPLES AND PEARS.—With reference to Mr. Bailey's letter on the above subject, your Report on Fruit Crops for Kent last July (p. 67) shows:—*Apples:* Average, 5; over, 2; under, 2. *Pears:* Average, 1; under, 8. This looks as if "bumper crops" were not general. It is clear, however, that the quality of Apples is not affected by the weather of the previous summer. *Alfred O. Walker, Ulcombe Place, near Maidstone.*

RHUS TOXICODENDRON (see p. 272).—On reading Mr. Divers' letter I cannot help thinking that two different things must be doing duty under the one name. Years ago I used to have a plant bearing the name *Ampelopsis japonica*, which was very similar to the one known as *R. Toxicodendron*. Its chief characteristics were that it was difficult to propagate, and that it coloured beautifully in the autumn. The best plant of it I ever saw was in the angle of a rather high wall at Ravensdale Park between Newry and Dundalk, and it was the glory of the garden every autumn. I used to get a few plants occasionally from Tunbridge Wells, but they were always grafted and probably always upon *Rhus Toxicodendron*, because I once saw in a garden to which I had sent it both growing from a common root. *R. Toxicodendron* never colours here in the autumn to more than a brownish-yellow, and because Mr. Divers refers to the change of colour and the immunity of his works from eczema, it is probable that he has *Ampelopsis japonica* and not the *Rhus* at all. *T. Smith, Newry.*

THE CELERY DISEASE (CERCOSPORA APII) has now become very prevalent in this part of the country. So bad in fact that it is hardly safe to grow Celery without periodical spraying. I am afraid if matters go on as they have done for the past two or three years growers will have to make up their minds and spray this crop just as they do Potatoes. How this disease has become so prevalent here I cannot say. I have heard the theory advanced that the infection may have come through seed saved from infected plants. I have never had this disease in my own plants until the present year, but I know others who are troubled with it every year, and they were not able to produce good Celery until they started spraying. I sprayed half the Celery here several weeks ago, and am glad to say it is nearly clean now, though at the time it was badly affected. It would be interesting to hear from growers in England if the disease is spreading, and what steps are being taken to combat it. *D. Calthorpe, The Gardens, Ballyheigue Castle, Ballyheigue, Co. Kerry.*

EXPERIMENTS IN THE POLLINATION AND SETTING OF FRUIT.—The notes on pp. 254 and 255 on this subject are of very deep interest. My experience is that ordinary varieties are not really good agents to supply the pollen; it is not potent enough to produce good crops. The species produce much better and more fertile pollen for fructification than the varieties. The Common English Crab, or the Siberian Crab, planted amongst a batch of Apples, works wonders. During 1904-1908, in the nurseries of Messrs. Keynes, Williams & Co., an attempt was made to make these nurseries more interesting and ornamental by the plantation of mixed borders. The assortment of trees and shrubs at the disposal of the planter was very limited, and intermixed therewith were many varieties of Crabs, including the varieties John Downie, Siberian, and others. Adjoining these ornamental borders were fruit trees of all sizes and varieties, ranging from one to ten years old. At a glance, the observer could see, in a kind of cycle from the Crab, the effect of fruit production from the pollination of these Crabs. At this period I was in communication with a horticultural teacher in the Government School of Gardening, at Buda Pesth. I told him of my suspicion that the species, if employed for pollination, was the right thing. The idea was put into practice, and has proved successful in Hungary. Further, I suggested a classification, placing Codlins, Pippins, Pearmain, Nonpareils, Russets, Reinettes, Pomeroyes, Costards, and Crabs in sections. In the Buda Pesth School of Gardening better results were obtained from the pollination within a given class than by using the pollen of a Pearmain on a Pippin,

or a Codlin on a Russet; but where Crab pollen was used, excellent results ensued. I have tried Crab pollen to set Cox's Orange Pippin, by planting a tree of the variety of John Downie amidst a dozen trees of the variety of John Downie of Crab Apple blossom, and set them up in jars of water, and I have also used a pencil brush to carry pollen to impregnate the flowers, and found every fruit to set. In my lectures on fruit I am strongly recommending the planting of a Crab of some kind, John Downie, Dartmouth, Siberian, or some other variety; they are useful and ornamental. A few weeks ago I visited the gardens of Croxdale Hall, Co. Durham. Many varieties of Crab are to be found in the shrubberies, with the result that Apple trees of all sorts bear very heavy crops. Many readers of the *Gardeners' Chronicle* can doubtless remember an ancient manor house or old farmstead with its orchard where invariably a Crab (Siberian) was to be found. Whether it was so planted there for its beauty or its fertility in assisting other Apple crops one cannot say. There the Crabs are, and though the old orchard produces fruits of inferior quality, it rarely misses a crop. I venture to say, if Mr. C. Martin, manager of the Toddington Orchard Co., in Gloucestershire, were to plant one John Downie Crab to every 25 trees of Cox's Orange Pippin, intermixed, the results would astonish him. The planting season is now upon us. It is a good time to procure a few Crabs. Mr. Hooper does not tell us if Lane's Prince Albert was used in any experiments of pollination. I shall be pleased to give my experiences on the pollination of other fruits, but I am afraid I am encroaching on your space at the present time. I should like to say that I am in communication with the Under-Secretary for the Department of Agriculture and Stock, Brisbane, Queensland, on this and other allied subjects. Any useful information I receive I shall be pleased to impart. *John Smith, County Council Inspector and Instructor in Horticulture.*

SOCIETIES.

ROYAL HORTICULTURAL

OCTOBER 24.—The attendance at the fortnightly meeting of the Committees on Tuesday last was greater than is usual at this time of the year, notwithstanding a heavy dew and a cold day. Hardy trees and shrubs largely predominated, and in consequence of the continued mild weather, cut flowers from the open ground were of high quality. The principal collection of Dahlias, Nerines from Mr. Elwes found many admirers, and fully deserved the awards which they received.

The FLORAL COMMITTEE recommended 13 Awards of Merit, four of these being for Nerines. The same Committee awarded 14 medals for groups.

The ORCHID COMMITTEE recommended two First-class Certificates and one Award of Merit, while the FRUIT AND VEGETABLE COMMITTEE recommended an Award of Merit to a variety of Plum, being a sport from Coe's Golden Drop.

Floral Committee.

Present, W. Marshall, Esq., and Henry E. May, Esq., (Chairmen); and Messrs. A. Kingsmill, W. J. Bean, John Green, G. Reuthe, John Dickson, Wm. J. James, Charles T. Druey, C. R. Fielder, J. F. McLeod, C. Blick, W. Howe, J. Jennings, Herbert J. Cutbush, Chas. Dixon, Arthur Turner, Charles E. Pearson, J. T. Bennett-Poe, W. P. Thomson, R. C. Notcutt, E. A. Bowles, George Paul, R. C. Reginald Nevill, F. Page Roberts, E. H. Jenkins and James Hudson.

Messrs. H. B. MAY & SONS, Upper Edmonton, staged a large collection of Ferns, which consisted entirely of 120 species and varieties of Adiantum. On the opposite table Messrs. MAY arranged well-flowered pot plants of Begonia Gloire de Lorraine in several varieties, and similar specimens of Begonia Aglaia. (Silver-gilt Flora Medal.)

Messrs. J. VEITCH & SONS, Chelsea, filled one end of the Hall with a magnificent collection of hardy trees and shrubs. At the back there were tall standards of Scarlet Oak (*Quercus coccinea*), with brilliantly-coloured leaves, whilst in the foreground smaller plants of such useful shrubs as

Berberis Thunbergii, *Kadsura japonica*, and *Smilax caduca* also supplied vivid colouring. Such variegated shrubs as *Eurya latifolia* variegata, *Osmanthus Aquifolium ilicifolium argenteo-variegatum* (a choice shrub with an unfortunate string of names), *Rhamnus alternans variegata*, and several forms of *Ivy*, *Holly*, and *Cupressus*, contrasted finely with the many dark-green subjects. A few plants of *Symphoricarpos occidentalis* bore heavy crops of large, white fruits, and the common *Myrtle* was also fruiting. Messrs. VEITCH's exhibit of greenhouse plants made a bright show. *Bouvardias* in variety, and a batch of *Nerine Fothergillii* major, with compact spikes of flowers, showed good cultivation. In the middle of this collection there was a large batch of that valuable winter-flowering Begonia "Mrs. Heal" in full flower. A bamboo stand decorated with red and white *Lapagerias* and surrounded with fruiting *Ganges* attracted a deal of attention. (Silver-gilt Flora Medal.)

Mr. L. R. RUSSELL, Richmond, contributed a splendid collection of Bamboos, which occupied the whole of the wall space. This huge exhibit illustrated the interesting variety of Bamboos now in commerce. At the back of the group there were tall and stately culms of *Phyllostachys Henonis*, and the even taller *P. fastuosa*. Graceful semipendulous growths of the half-hardy *Arundinaria Falconeri* and *Arundinaria nitida* occupied prominent positions. The dwarf *Bambusa disticha*, on which the Japanese practise their dwarfing art, was present, as also was *Arundinaria Fortunei* variegata, in which the white streaks were clear and distinct. *Bambusa marmorea variegata* has less green in its leaves, but the variegation is not so clear. *Bambusa tessellata* is a desirable low-growing species with large, glossy leaves. Mr. RUSSELL also filled half of one of the tables with a collection of berried shrubs and several flowering plants of *Ceanothus Gloire de Versailles*. The berried subjects included good examples of *Crataegus Pyracantha*, *Aucubas*, *Skimmia*, *Pernettyas*, *Hollies* with yellow berries, and cut sprays of *Vitis heterophylla humulifolia*, bearing numbers of blue and purple berries. (Silver-gilt Flora Medal.)

Messrs. W. CUTBUSH & SONS, Highgate, arranged a large collection of hardy climbing plants at the right of the entrance to the hall. This group of well-grown plants had a good background of tall Bamboos, and was bordered with profusely-berried plants of *Skimmia japonica*. Most of the specimens in this exhibit, which consisted largely of *Vitis* species, were recent introductions from China. On the other side of the entrance Messrs. CUTBUSH set a large selection of hardy cosmoses and Michaelmas Daisies, with small batches of *Nerine Fothergillii* major, and border *Chrysanthemums* in the foreground. Messrs. CUTBUSH also exhibited a selection of Carnation blooms. (Silver-gilt Banksian Medal.)

Messrs. J. CHEAL & SONS, Crawley, exhibited sprays of autumn foliage in great variety. Of the many kinds shown, *Crataegus Carrierei* with green leaves and large fruits, *Quercus palustris*, the deciduous *Cypress* (*Taxodium distichum*), and *Aralia spinosa* (bearing fruits) were the most effective. (Silver Flora Medal.)

Messrs. PAUL & SON, Cheshunt, also arranged a numerically large exhibit. The sprays of *Parrotia persica* did not, owing to the bad light, do justice to this valuable tree. The middle of the group was occupied with a number of branches of Rose species bearing hips of various colours. A vase of Rose Rayon d'Or, with deep-yellow colour and an agreeable perfume, illustrated the mid-rose of the season. (Orange Flora Medal.)

Mr. JAMES BOX, Lindfield, Haywards Heath, filled a corner of the Hall with a very tasteful arrangement of hardy flowering plants, which had been grown entirely out-of-doors. The blooms of the *Chrysanthemums* were surprisingly fresh. A small collection of *Delphiniums*, with a few flowers of *Papaver orientale* and larger quantities of herbaceous *Phlox* and *Pentstemons*, would have been creditable even if shown during the month of August. (Silver Flora Medal.)

Messrs. WARE & CO., Feltham, Middlesex, exhibited border *Chrysanthemums*, Dahlias, and Michaelmas Daisies. The *Chrysanthemums* included such good white varieties as *Caledonia* and *Tapis de Neige*. Amongst the coloured varieties, *Normandie* and *Patricia* were noteworthy. (Silver Flora Medal.)

Messrs. BAKERS, Wolverhampton, exhibited a collection of Peony-flowered Dahlias, attractively

arranged with autumn foliage and yellow sprays of the culinary *Asparagus*. (Silver Flora Medal.)

Messrs. CARTER PAGE & CO., London Wall, also exhibited Dahlias. This firm's contribution included good Cactus and single varieties. (Silver Banksian Medal.)

Mr. J. B. RINDO, Chingford, exhibited a selection of his well-known Dahlias, chiefly of the popular collarette type.

H. J. ELWES, Esq., Colesborne, Cheltenham (gr. Mr. W. Walters), contributed a large selection of his famous Nerines. Of the large number shown, only six had been previously exhibited, and but few of the seedlings bore distinctive names. This interesting group admirably illustrated the great improvement which has been effected in this valuable, late autumn-flowering greenhouse plant. Many of the plants shown had large spikes, with fine individual flowers, in which the petals were distinctly broader than in the commoner forms, and many of the colours were bright and distinct. The hybrid "Miss Carrington," which received an Award of Merit in 1905, was included, and its large trusses of fine pink blooms were greatly admired. Four of the hybrids shown received Awards of Merit. Two small plants of *Stapelia gigantea*, with strange-looking flowers, 14 inches across, astonished many of the visitors, who were also interested in the yellow-flowered *Urceolina pendula*. Mr. ELWES also exhibited the rare *Aristea* (*Witsenia*) *corymbosa*, a small Cape Iridaceous, which has a stem like a Yucca, but bearing small tufts of Iris-like foliage and blue flowers. (Silver Flora Medal.)

Messrs. R. VEITCH & SON, Exeter, also exhibited Nerines, and included the large-flowered N. Bowdenii, N. devonia, and N. Fothergillii x crispum, which bears fine scarlet flowers. Besides these choice Nerines, there were large sprays of *Buddleia Colvillei*, which is now flowering for the second time.

Messrs. W. WELLS & CO., Mersham, arranged a tasteful group of *Chrysanthemums*. There were some enormous blooms of "White Queen" displayed with branches of *Scarlet Oak*. Among the single varieties we especially noted "Altruism Yellow" (with good, rich colour), the large-petalled *Snowflake*, and "Joan Edwards" (with blooms of a good mauve shade). (Silver Banksian Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Middlesex, arranged a striking collection of Carnation blooms, chiefly set up in separate colours. Besides many of the older varieties, this exhibit included, in *Gloriosa*, *Washington*, and *Baroness de Bienen*, three new pink varieties. (Silver Banksian Medal.)

Messrs. BARR & SONS, Covent Garden, staged a small collection of Michaelmas Daisies, with a few seasonable Alpines, and two pots of the tiny-flowered *Narcissus serotinus*, which has a delicate perfume.

Mr. G. REUTHE, Fox Hill Nursery, Keston, arranged Alpine plants and a few vases of Michaelmas Daisies.

Messrs. ALLWOOD BROS., Haywards Heath, showed their recent varieties of Carnation, including the French *La Rayonnante* (a glorified *Fortunata*).

ERNEST MCCARTY, Esq., Woburn Place, Addison (gr. Mr. T. Stevenson), exhibited a large number of exceedingly well-grown *Celosias*, in relatively small pots.

Messrs. DONNIE & CO., Edinburgh, staged an attractive selection of varieties of *Cosmos* bearing large flowers.

Miss V. G. JEFFREY, "Rosal," Gymbal Road, Lee, was awarded a Silver Flora Medal for a valuable collection of botanical studies in colours.

Miss PUGH, Streatham Common, exhibited a set of water-colour paintings of various garden scenes, chiefly from the Royal and London County Council parks.

AWARDS OF MERIT.

Nerine "Mrs. Balfour." This is a large flower tipped and edged with pink, with lighter centre. One of the best Nerines we have seen.

N. "How Miss Gibbs." A very large spike, bearing broad-petalled plum-coloured flowers.

N. "Mrs. Ward-Walker." An orange-scarlet flower with very broad petals.

N. "Sunshades." A white-flowered hybrid, having a good, compact truss. All were shown by H. J. ELWES, Esq., Colesborne, Cheltenham (gr. Mr. W. Walters).

Chrysanthemum "Bronze Goocher."—(See report of N.C.S. exhibition on p. 264.)

C. "Dorothy Dunn."—A single-flowered variety; terra-cotta shaded with orange. Both were shown by Messrs. W. WELLS & Co., Merstham.

Robertia corymbulosa. An evergreen species from China, with a dense habit and small, shining leaves, glaucous beneath. The small yellow flowers are borne in pairs, and are followed by violet-purple fruits.

Lonicera nitida.—An evergreen Honeysuckle, possessing habit of growth and foliage suggestive of the small-leaved Myrtles, and which bears fragrant, creamy-white flowers. Also shown by Messrs. J. VEITCH & SONS, Chelsea.

A. "Amethyst." (NOVA BELGII).—This has blue flowers, fully 2 inches across.

A. "Profusion" (ericoides).—A very decorative variety, bearing an abundance of small, white flowers. Both were shown by the Hon. VICARY GIBBS, Aldenham House, Elstree.

Dahlia "Delice."—A decorative flower of good size, rose-pink in colour, and borne well above the foliage. Earlier in the season the colour is deeper than in the specimens shown. Exhibited by Messrs. CARTER PAGE & Co., London Wall.

Veronica "Silver Queen."—A bushy Veronica, with less green in its leaves than usual. Shown by Messrs. W. CUTBUSH & SON, Highgate.

Clerodendron Fargesii.—An evergreen species from China, closely related to *C. trichotomum*. The cordate leaves are terminated with whitish flowers at midsummer, which give place at this season to bright-green, closely-set berries. Shown by the DIRECTOR OF THE ROYAL GARDENS, Kew.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Sir Jeremiah Colman, Bart., Stuart Low, J. S. Moss, R. G. Thwaite, F. J. Hanbury, A. A. McBean, C. H. Curtis, T. Armstrong, W. Cobb, J. Charlesworth, J. Cypher, W. P. Bound, W. H. Hatcher, H. G. Alexander, A. Dye, W. H. White, Gurney Wilson, and W. Bolton.

Messrs. JAS. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal for a group which included good examples of *Cattleya Mantini*, *C. Portia*, *C. Mrs. J. W. Whiteley*, a very fine form of *C. F. W. Wigan*, a selection of autumn-flowering *C. labiata*, *C. Fabia*, and others; a good selection of *Cypripediums*, including some new hybrids, *Vanda cœrulea*, *Lælio-Cattleya luminosa*, and other *Lælio-Cattleyas*, the rare *Masdevallia angulata*, and *Bulbophyllum grandiflorum*.

Messrs. HASSALL & Co., Southgate, were awarded a Silver Flora Medal for a group composed principally of a remarkable selection of forms of *Cattleya labiata*, including a white variety, with violet blotch on the lip, and another which is a new form, so far as colour is concerned, the prevailing tint being light violet, and the petals white, tinged with blue. A good example of the rare *Angrecum* (*Listrostachys*) *infundibulare*, with a large, white front to its long, funnel-shaped lip, *Eria stellata*, and others were also shown.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, secured a Silver Flora Medal for a group in which fine forms of *Cattleya labiata* and its hybrid *C. Fabia* were attractive features. A selection of the pretty *C. Armstrongiae* formed the centre, and a good selection of *Cypripediums*, *Phalenopsis Rimestadana*, *Dendrobium Cœlogyne*, *Bulbophyllum Godseffianum*, *B. grandiflorum*, *Cirrhopetalum appendiculatum*, and other uncommon species were also included.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for a very pretty and interesting group, the setting of which was of *Cattleya Fabia*, including the white variety and the brilliantly-coloured variety *Ignacens*, together with other hybrids. Among the *Cypripediums*, *C. Franconia* (*Callosum* Sanders & Callo-Rothschildianum) was a very fine, bold flower of good quality and distinct. Rare species included *Bulbophyllum Medusæ* with two fine spikes, a pretty tuft of *Saccolabium acutifolium* with many heads of bloom, *Catasetum macrocarpum*, *Cynoches Egertonianum viride*, *Acineta chrysantha*, and *Spathoglottis Fortunei*.

Messrs. CHARLESWORTH & Co., Haywards Heath, received a Silver Flora Medal for a group of rare Orchids, in which the autumn-flowering form of *Epidendrum vitellinum* gave bright, orange-scarlet colour, many of the spikes being branched. *Cattleya Fabia alba* was a very fine white-petalled form, *Lælio-Cattleya Haroldiana*, *L.-C. luminosa*, *L.-C. Golden Oriole* and some new hybrid *Lælio-Cattleyas* were very brightly coloured, and *Miltonia Bleuana nobilior*, the very handsome *Odontoglossum Aireworthi*, the rare, clear-yellow *Oncidium varicosum* concolor, and other rare plants were also noted.

Messrs. STUART LOW & Co., Bush Hill Park, secured a Silver Flora Medal for a fine group, at the back of which was an elegant display of *Oncidium varicosum* and *O. oblongatum*. *Cattleya labiata*, *C. Loddigesii*, and *C. Warscewiczii* were effective, and *Dendrobium Phalenopsis Schröderianum*, *Oncidium spillopterum*, *O. Lanceanum*, a selection of good *Cypripediums*, *Cynoches maculatum*, and *Masdevallia macrura* were also included. A pretty hybrid in the group was *Lælio-Cattleya Herscortiae* (*L. Boothiana* × *C. aurea*), a rose-coloured flower.

Messrs. J. & A. A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for a pretty group, the best plant in which was their grand form of *Lælio-Cattleya St. Gothard*, which secured a First-class Certificate (see Awards). In the centre were good plants of *Vanda cœrulea* with *Dendrobium Phalenopsis* and pretty forms of *Cattleya Warscewiczii*, *C. Dowiana aurea*, &c. A richly-coloured form of *Odontidia Charlesworthii*, raised by Messrs. McBEAN, was also exhibited.

Monsieur CHAS. MARON, Brunoy, France, was awarded a Bronze Banksian Medal for a small group made up of two grand specimens of his dark-coloured *Cattleya Fabia Vigeriana*, and a very clear, white-petalled *C. Fabia alba*, together with a selection of *Brassia-Cattleyas*.

Lieut.-Col. Sir GEO. L. HOLFORD, K.C.V.O. (gr. Mr. H. G. Alexander), showed his fine *Lælio-Cattleya luminosa aurea*, which received a First-class Certificate (see Awards), and the new *Cypripedium Oberon* (*Euryades* × *Fairrianeum*), an improvement on the dark-coloured *C. Baron Schröder*, and of darker colour.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed *Cattleya labiata* Lady Leese, a charming pure-white form, with violet blotch on the lip; *Lælio-Cattleya Mrs. Phayre* (*L.-C. Norba* × *C. aurea*), with delicately tinted, yellowish flowers, with rose-pink lip; and *L.-C. Mrs. Phayre inversa*, the lip of which resembled a light form of *C. aurea*.

EDWARD ROBERTS, Esq., Park Lodge, Eltham (gr. Mr. W. Carr), sent *Cypripedium Gipsy*, said to be a cross between *C. Lanthe superbum* and *C. niveum*, a fine flower, with the colours of *C. Harrisonianum superbum*.

W. P. BURKINSHAW, Esq., West Hill, Hestle, Hull (gr. Mr. Barker), showed fine specimens of *Cypripedium Gaston Bultel* and *C. Lord Ossulton*, each with several flowers.

C. J. PHILLIPS, Esq., The Glebe, Sevenoaks, showed *Oncidium Forbesii* "Glebe" variety, one of the largest yet exhibited.

Sir TREVOR LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White), showed a grand specimen of *Octomeia Baueri*, with a great number of bunches of cream-yellow flowers.

FRANK LLOYD, Esq., Coombe House, Croydon (gr. Mr. E. Mills), showed a pretty hybrid between *Lælia Jongheana* and *Sophrontitis grandiflora*.

Monsieur le Comte de HEMPTINNE, St. Denis, Westrem, Belgium, showed *Lælio-Cattleya Steppestadiana* (*C. Luddemanniana* × *C. aurea*), a pretty flower, with yellow sepals and petals, and a ruby-red lip, with gold veins.

Mr. E. V. Low, Vale Bridge, Haywards Heath, showed the fine white *Brassia-Cattleya* Queen Alexandra, and a grand specimen of *Cattleya labiata*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Lælio-Cattleya luminosa aurea (*L. tenebrosa* "Walton Grange" variety × *C. Dowiana aurea*), from Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). In this very remarkable and handsome hybrid the features of the beautiful *Lælia tenebrosa* "Walton Grange" variety are well

marked, the very large flowers having clear, greenish-primrose sepals and petals, broad and well displayed. The large lip is of an intense reddish-carmine colour. It is very distinct.

Lælio-Cattleya St. Gothard "McBean's" variety (*L.-C. Gattoiana* × *C. Hardyana*), from Messrs. McBEAN, Cooksbridge. One of the showiest of *Lælio-Cattleyas*, and remarkable in that it adheres in the broad form of the lip and general characters to *C. Warscewiczii*, obtained through *C. Hardyana*, but the flower is broader. The original form obtained a First-class Certificate when shown by Mr. H. S. Goodson, October 13, 1908. "McBean's" variety is better even than that fine form. The broad, flat sepals and petals are bright rosy-lilac, the broad, rounded, crimped lip ruby-crimson, with a light disc.

AWARD OF MERIT.

Vanda Kimballiana alba, from Messrs. MANSELL & HATCHER, Rawdon, Leeds. The first white form of the favourite species yet seen. The flowers are exactly similar in form to the coloured type, but white, with a yellow base to the lip.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the Chair); and Messrs. J. Cheal, C. G. A. Nix, E. Beckett, A. Dean, W. E. Humphreys, J. Vert, J. Davis, A. R. Allan, P. C. M. Veitch, P. D. Tuckett, G. Wythes, J. Harrison, W. Poupard, and J. Jaques.

Numerous seedling or local Apples were sent for the inspection of the Committee. One of these, a pretty medium-sized dessert variety, shown by Mr. ARTHUR GOSWOLD, Chichester, was interesting, but, being rather past its season, the exhibitor was asked to send fruits again a little earlier next year.

A variety of Tomato shown by Mr. F. H. CHAPMAN, Rye, was sent to Wisley for trial.

Messrs. AMBROSE PALMER & Co., Grosvenor Square, sent a collection of 30 dishes of very good Apples and Pears. Of cooking Apples the finest were Bramley's Seedling, Lady Heniker, Newton Wonder, Lane's Prince Albert, Warner's King, Bismarck, and Peasgood's Nonesuch. Dessert varieties were seen in Cox's Orange Blenheim and Allington Pippins, and James Grieve. Good Pears were Conference, Beurré Diel, Duchesse d'Angoulême, Le Lectier, and Nouveau Poiteau. (Silver Banksian Medal.)

Mr. W. B. McDONALD, Public Library, Shepherd's Bush, who sent bunches of ripe Black Hamburg Grapes from a vine growing on an open wall at the previous meeting, was, after the vine had been seen and reported upon, awarded a Bronze Knightian Medal.

From the Society's Gardens, Wisley, came a remarkable collection of 60 stocks of Carrots, about half-a-dozen roots of each variety being staged. For such a season as the past has been, the roots were clean and good, and the collection reflected the highest credit. The types most prominent were the Little Gem, or Early French Forcing, the rather longer and stout Early Gem; the Early Nantes, a pretty, small Carrot some 5 to 6 inches long; Long Red, or Perfection Coreless, a coreless variety of sausage shape, and greatly liked on the Continent, but one which does not do well here on cold soils. The names of Dainty, Paris Market, Chateaux and Matchless were attached to some of these stocks. Then came the short Model type, a very handsome summer Carrot. There were several lots of the Old Long Surrey, a very deep-rooting variety, also of the Altrincham or Magnum Bonum, with purplish tops to the roots. The very fine maincrop Carrots, Scarlet Perfection, St. Valéry, Matchless (perhaps the best known as the Red Intermediate), James' Intermediate and Blanc des Vosges, with broad, white Parsnip-like roots.

Mr. W. E. SANDS, Hillsborough, Ireland, staged 36 varieties of Irish-grown Potatoes. None was above good table size, but all were very clean and free from disease. Of Irish varieties were the Colleen White Round, Erin's Best, Erin's Queen, Leinster Wonder, Irish Hero (a strong grower and heavy cropper), King George V. (a pretty, white, round tuber), and British Queen No. 2, a good selection apparently from the Old British

Queen. Of coloured Irish varieties were the purple Skerries, and the red Irish Queen. Then of Scotch or English varieties Midlothian Early, Factor, Langholme Model (a pretty white kidney), Epicure, President, Windsor Castle, Eclipse, Duchess of Cornwall, The Diamond, Sharpe's Victor, and others were all excellent. (Silver Knighting Medal.)

AWARD OF MERIT.

Plum Coe's Violet.—An Award of Merit was given to this sport from Coe's Golden Drop Plum. The fruits are prettily tinted with violet, and they possess exceedingly rich flavour. Those exhibited were grown in a cool orchard house and sent by Lord HOWARD DE WALDEN, Audley End, Saffron Walden (gr. Mr. J. Vert).

NORTH OF ENGLAND HORTICULTURAL.

OCTOBER 18.—This young society had to remove to a larger hall on this date so that the numerous exhibits could be properly staged and accommodated. The Town Hall is the largest in the city, and it was filled with one of the finest collections of fruits and flowers ever seen in Leeds. Great interest was centred in two exhibits, namely, a dish of Ribston Pippin Apples from the original tree raised from seed in 1709, exhibited by Major DENT, of Ribston Hall, who is the chairman of the Council. The other exhibit was a collection of Apples from the gardens of the cottagers in the little hamlet of Hook. These latter were sent for the FRUIT AND VEGETABLE COMMITTEE to adjudicate upon, and they awarded a small Silver-gilt Medal.

AWARDS.

PLANT AND FLORAL COMMITTEE.

Large Gold Medal to MESSRS. DICKSON & ROBINSON, Manchester, for a large collection of Asters and Chrysanthemums.

Large Silver-gilt Medal to MESSRS. HARKNESS & SON, Bedale, for hardy flowers; MESSRS. G. GIBSON & CO., Bedale, for hardy flowers; and MESSRS. J. & W. BROWN, Peterborough, for Roses.

Large Silver Medal to MESSRS. E. J. RATHBURN & SON, Harrogate, for Chrysanthemums; Mr. W. LAWRENSON, Yarm-on-Tees, for Carnations; and MESSRS. W. CUTBUSH & SONS, Highbury, London, for a collection of hardy flowers.

Small Silver Medal to MESSRS. KERR & SONS, Liverpool, for Cyclamen and Begonias.

Large Bronze Medal to MESSRS. YOUNG & CO., Cheltenham, for Carnations.

Small Bronze Medal to Mr. ALVA J. HALL, Harrogate, for hardy Veronics; MESSRS. G. LONGSTER & SONS, Malton, for hardy flowers; and MESSRS. S. REYNOLDS & SONS, Huddersfield, for Alpines.

FRUIT AND VEGETABLE COMMITTEE.

Large Gold Medals to the KING'S ACRE NURSERIES, Hereford, for a stand of very fine Apples and Pears; MESSRS. T. RIVERS & SON, Sawbridge, for 31 pot-grown Apples; J. BRENNAND, Esq., Baldersby Park, Thirsk (gr. J. Hathaway), for an exhibit of 51 Apples (excellent).

Large Silver-gilt Medal to W. H. ST. QUIN-TON, Esq., Scampston Hall, Rillington (gr. Mr. F. C. Puddill), for Apples and Pears; and to the HOOK VILLAGERS, for 154 dishes of Apples and Pears.

Large Silver Medal to R. J. FOSTER, Esq., Stockeld Park, Wetherby (gr. Mr. J. Turton), for Apples, Pears and Melons; MESSRS. J. BARKER & SON, York, for Apples; Major DENT, Ribston Hall, Wetherby (gr. Mr. J. McLelland), for 20 dishes of Apples and Pears; and MESSRS. DOBBIE & CO., Edinburgh, for 27 baskets of Potatoes.

Large Bronze Medal to Hon. Mrs. G. W. WINN, Walton Hall, Wakefield (gr. Mr. W. Allison), for an exhibit of Apples.

ORCHID COMMITTEE.

Silver-gilt Medals to MESSRS. CHARLESWORTH & CO., Haywards Heath; J. H. CRAVEN, Esq., Keighley (gr. Mr. F. W. Corney); and Mr. ED. V. LOW, Vale Bridge, Haywards Heath.

Silver Medal to MESSRS. MANSELL & HATCHER, Rawdon.

Bronze Medals to MESSRS. A. J. KEELING & SONS, Bradford; J. WATSON, Esq., Morley (gr. Mr. C. Cross); and the LIVERPOOL ORCHID CO.

SUNDRIES.

Silver Medal to MESSRS. W. WOOD & SON, London.

FIRST-CLASS DIPLOMAS.

J. H. CRAVEN, Esq., Keighley (gr. Mr. F. W. Corney), for *Cypripedium San-actaeus* ("Craven's" variety); MESSRS. WM. CUTBUSH & SON, London, for *Cimicifuga Simplex*; MESSRS. DOBBIE & CO., Edinburgh, for *Collarette Dahlias* "Diadem" and "The Czar"; Mr. ED. V. LOW, Haywards Heath, for *Cattleya labiata* var. W. R. Lee and C. l. var. *leucocolla*; MESSRS. CHARLESWORTH & CO., Haywards Heath, for *Cattleya labiata* var. Lord Rothschild's delicata; and MESSRS. DICKSON & ROBINSON, Manchester, for *Onion* "Premier."

SECOND-CLASS DIPLOMAS.

Mr. WM. LAWRENSON, Yarm-on-Tees, for new Apple "Wm. Nicholson"; MESSRS. DOBBIE & CO., Edinburgh, for *Collarette Dahlias* "Princess Louise," "Windsor" and "Balmoral"; MESSRS. HARKNESS & CO., London, for *Cattleya labiata* "exquisita"; and MESSRS. CHARLESWORTH & CO., Haywards Heath, for *Cattleya labiata* "Empress Frederick."

NATIONAL CHRYSANTHEMUM.

OCTOBER 25.—At a meeting of the Floral Committee of the National Chrysanthemum Society, held on Monday last, awards were made to the following novelties:—

FIRST-CLASS CERTIFICATES.

Gertrude Peers (Japanese).—A well-formed flower, of rich ruby-crimson, with gold reverse. Shown by MESSRS. W. WELLS & CO.

Walter Parsons (Japanese).—A striking shade of chestnut, suffused with gold. Shown by Mr. W. THOUPE.

Coronation (Japanese).—A well-built flower, of deep rose shade, with silvery reverse. Shown by MESSRS. J. STREDWICK & SONS.

Wonder (Japanese).—A pleasing colour of old rose, shaded with terra-cotta, and having a buff reverse. Shown by Mr. M. SILSBURY.

Mrs. W. Garnier (single).—Bright bronze, tipped gold, with yellow zone. This is a sport from *Bronze Pagram*, upon which it is a distinct improvement. Shown by MESSRS. CRAIG, HARRISON, & CRAIG.

Young Richard (early single).—This flower is a shade of crushed strawberry, with reddish-rose markings. Shown by Mr. H. J. JONES.

CARDS OF COMMENDATION.

Mrs. W. Hoskey (Japanese).—Straw yellow, shaded with rose. Shown by MESSRS. W. WELLS & CO.

Madame A. Nonin (market decorative).—A pleasing shade of silvery pink. Shown by Mr. G. PERRY, Hayes.

Miss Venetia Hartmann (Japanese).—Lemon yellow. Shown by Mr. W. JINKS.

Surprise (early single).—Bright-reddish terra-cotta. Shown by Mr. H. J. JONES.

Thoupe's Terra-cotta (early decorative).—Golden bronze. Shown by Mr. W. THOUPE.

Several blooms of Cranford Yellow and Golden Glory were exhibited, and the two varieties were declared to be synonymous.

A vote of thanks was accorded MESSRS. LOW & SHAWVER, Uxbridge, and MESSRS. CRAIG, HARRISON & CRAIG, Heston, for the kind manner in which the members of the Floral Committee and friends were received at their nurseries recently.

BULB-GROWERS' SOCIETY OF HAARLEM, HOLLAND.

The following awards were made at the September meeting of the Floral Committee of the Society of Haarlem Bulb-growers:—

FIRST-CLASS CERTIFICATE.

Paeony-flowered Dahlia President Fallières.—A new seedling variety, with bright, orange-scarlet flowers.

AWARDS OF MERIT.

Canna P. Fougerat, with large, bright-scarlet flowers.

C. Mollie Charot, light-scarlet, banded with orange.

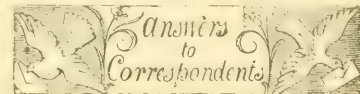
C. Nabert Neiss.—A very floriferous variety with large, bright-orange flowers.

C. Frau Spitta, with large, bright, carmine-rose flowers.

C. Hohenzollern.—A large-flowering variety with light-yellow flowers.

Paeony-flowered Dahlia Souvenir de Maasdijk.—A new seedling variety with large yellow flowers shaded with rose.

Dahlia Collarette Diadem.—Colour carmine rose, the collar being white, feathered with rose.



* The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

APPLES DISEASED. T. W. The Apples are affected with the Apple scab fungus. This disease can be eradicated if all diseased branches of the tree are removed at once, and next season the trees are sprayed with the Bordeaux mixture whilst the leaves are quite young.

BEGONIAS. H. M. M. We must ask you to send better specimens of the *Codiaeums*, hardy shrub, and *Begonias*, it being impossible to make a satisfactory examination from such shrivelled leaves.—H. H. Dorset. The roots are badly affected with *Edworm*, as may be seen by the numerous excrescences. There is no cure; you had better obtain stock from a fresh source another season, and select your potting compost also from a different source.

CORDON APPLE TREES DISEASED. *Vanda*. The Apple trees are attacked by a fungus which has caused root-rot. It will be well to bare the collar and main roots as much as practicable, and dredge them with a mixture of one part of sulphur mixed with two parts of quicklime, covering this mixture with fresh soil mixed with lime and sulphur in the same proportions as already named.

CYCLAMEN. W. H. M. The grubs which are destroying the Cyclamen corms are the larvae of a Weevil. It may be sufficient if the plants are occasionally turned out of their pots, and all the larvae which are visible picked out by the use of a pointed stick and destroyed. If this treatment is ineffective, shake the roots entirely free from the soil and larvae, and repot the Cyclamens in a fresh compost. Another plan is to turn the roots out of the pots, and spray the roots and soil with carbon bisulphide or "Vaporite."

FIGS. N. H. There is no disease present in your Figs. Prick up the ground, and in the spring apply a mulch of short manure.

FUNGUS. B. Barker. Both fungi are the Fly mushroom *Amanita muscaria*. This species is poisonous.

GRAPES. London. There does not appear to be anything the matter with the Grapes, except that they are affected with the insect known as Mealy Bug. The Grapes themselves are perfectly sweet; if decay is found amongst them it is merely due to the berries being over ripe.

HEDGE FOR SCREEN. E. H. O. We do not recommend the mixing of several kinds of plant in a hedge, but, on the contrary, advise you to plant common Beech or Hornbeam. Either plant is capable of making a good hedge, and

has the additional merit—Beech especially—of holding its leaves during the greater part of the winter, thereby forming additional protection. Thorn is not of much use if a hedge over 4 feet in height is required. Your best plan is to procure plants of the common Beech or Hornbeam, about 3 feet or 4 feet in height, and to plant them about 1 foot or 18 inches apart, according to the business of the plants.

MELON LEAVES: *T. S.* The plants are badly attacked by the fungus disease, *Cercospora melonis*. Remove all badly infected leaves, and spray the plants throughout the house with a rose-red solution of permanganate of potash at intervals of three days.

NAMES OF FRUITS: *P. A. 1.* Hawthorn; 2, Welford Park Nonesuch; 3 and 4, Cox's Orange Pippin; 5, Blenheim Pippin; 6, Pitmaston Golden Pippin; 7, Rosemary Russet.—*B. & W.* The fruits are so badly grown and deformed that we cannot name with certainty.—*J. B.* Red Apple, Herefordshire Beefing, Green Fruit, Duke of Devonshire. The Plum was smashed.—*T. Pitt.* 1 and 4, Beurré Diel; 2 and 3, Send again later; 5, Blenheim Pippin; 6, Ribston Pippin.—*J. W.* 1, Summer Strawberry; 2, The Queen; 3, Yorkshire Beauty; 4, not recognised; 5, Cellini; 6, Colonel Vaughan.—*G. W.* Without doubt Warner's King; 2, King of the Pippins; 3, Withington Filbasket; 4, Lane's Prince Albert; 5, Yorkshire Beauty; 6, Doyenne Boussoch.—*Pomo.* 1, Vicar of Winkfield; 2, Beurré Diel; 3, Waltham Abbey Seedling; 4, Castle Major; 5, French Crab; 6, Dumelow's Seedling.—*R. J. O. C.* 1, Lord Derby; 2, Ribston Pippin; 3, Ribston Pippin; 4, send again later.—*T. E.* 1, Small's Admirable; 2, Royal Russet; 3, Court-pendé-plat; 4, Court of Wick; 5, Delling Seedling; 6, Allen's Everlasting; 7, Blenheim Pippin.—*R. J. F.* 1, Queen Caroline; 2, Scarlet Golden Pippin; 3, Round Winter Nonesuch; 4, possibly a local variety; 5, Winter Hawthorn; 6, New Hawthorn; 7, Cox's Orange Pippin; 8, Potts's Seedling; 9, Bedfordshire Foundling; 10, Blenheim Pippin; 11, Stamford Pippin.—*Fletcher Bros.* 1, Mère de Ménage; 2, Ribston Pippin; 3, Reinettes de Canada.—*O. A. C.* 1, Cellini; 2, Beauty of Kent; 3, Small's Admirable; 4, Lady Henniker; 5, Lane's Prince Albert; 6, Warner's King.—*M. B.* 1, Sandringham; 2, Mère de Ménage; 3, Bank Apple; 4, Warner's King; 5, London Pippin; 6, Lane's Prince Albert.—*G. W. H.* 1, Bismarck; 2, Small's Admirable; 3, American Mother; 4, Lord Lennox; 5, Stirling Castle; 6, Gravenstein; 7, Reinettes de Hollande; 8, Melon; 9, Minchull Crab; 10, not recognised; 11, Warner's King; 12, Duchess of Oldenburg.—*J. MacD.* 1, Prince Albert; 2, not recognised; 3, Alfriston; 4, Ribston Pippin; 5, French Crab; 6, Grange's Pearmain.—*F. Dunc.* A, Belle de Pointoise; B, Golden Harvey; C, Reinettes Van Mous; D, Pitmaston Pineapple; E, Maltster; F, White Nonpareil.—*J. Coulmer.* 1, Cox's Pomona; 2, Lewis's Incomparable.—*No note for identification.* One Pear was included amongst Apples, asking if it is a cooking variety; the fruit is Hacon's Incomparable, and is not recognised as a good stewing Pear; 1, Mabbott's Pearmain; 2, Claydon Pearmain; 3, Waltham Abbey Seedling; 4, Glory of England; not syn. with Gasconne's Scarlet.—*T. W.* 1, White Nonpareil; 2, French Crab; 3, Kedleston Pippin; 4, Mank's Codlin; 5, King of the Pippins; 6, not recognised.—*J. M.* Undoubtedly Marie Louise.—*A Reader.* Hughes's Golden Pippin.—*H. Tuckett.* We do not think the Apple is in commerce, but it is a splendidly-flavoured variety; we advise you to get some young stocks grafted from the original tree.—*F. White.* Nonpareil.—*H. M.* 1, Annie Elizabeth; 2, Hanwell Souring; 3, Minchull Crabb; 4, Forge Apple.—*C. F.* 1 and 4, Sturmer Pippin; 2, Frogmore Golden Pippin; 3, French Crab; 5, Fearn's Pippin.—*No Letter* (fruits packed in a pickling size box): 1, Stirling Castle; 2, Beauty of Kent; 3, Blenheim Pippin; 4, Bramley's Seedling; 5, Allington Pippin.—*Constant Reader.* 1, Harvey's Wiltshire Defiance; 2, Queen Caroline; 3, Dean's Codlin; 4, Blenheim Pippin; 5, Winter Strawberry; 6, Claygate Pearmain.—*C. W.* Cornish Aromatic.—*E. Dalton.* 1, Warner's King; 2, Belle Dubois; 3, Broad Eye Pippin;

4, Queen Caroline; 5, King of the Pippins; 6, not recognised; 7, Marie Guissey; 8 and 9, these are inferior specimens and cannot be named.—*J. MacD.* 1, Cellini; 2, Annie Elizabeth; 3, Tower of Glamis; 4, Maltster; 5, Grange's Pearmain; 6, Lane's Prince Albert.—*E. W. Seel.* 1, Scarlet Golden Pippin; 2, Allen's Everlasting; 3, Van Mons; 4, Hawthorn; 5, Tom Putt.—*E. H. C.* 1, Summer Stubb; 2, Winter Strawberry; 3, we have compared the fruit with the variety Lord Derby, and the only difference we can detect is that the fruit sent is a little sweeter.—*A. B.* 1, Manks Codlin; 2, Fearn's Pippin; 3, Dean's Codlin; 4, Radford Beauty; 5, Mannington Pearmain; 6, King of the Pippins.—*B. H. L.* 1, King of the Pippins; 2, White Nonpareil; 3, Mabbott's Pearmain; 4, Adams's Pearmain; 5, Hornead's Pearmain; 6, Dumelow's Seedling (Wellington); 7, Ashmead's Kernel.—*W. Beales.* The specimen arrived in a much bruised condition; send earlier next season.—*H. W.* Pears decayed; 3, Blenheim Pippin; 4, Round Winter Nonesuch; 5, King of the Pippins; 6, Lady Sudely.—*T. J. F.* 1, King of the Pippins; 2, Minchull Crab; 3, Lord Derby; 4, Melon Apple; 5, White Nonpareil; 6, Grégoire Bordillon; 7, Winter Quarenden; 8, Fearn's Pippin; 9, Napoleon; 10, Easter Beurré; 11, Marie Benoist; 12, Gansel's Bergamot; 13, Brownlee's Russet; 14, Josephine de Malines; 15, Northern Spy; 17, Blenheim Pippin.—*Cestrian.* 1, Braddick's Nonpareil; 2, Spitzenberg; 3, Barcelona Pearmain; 4, Royal Russet; 5, Cockle's Pippin; 6, Tower of Glamis; 7, Bellegue Pippin; 8, Ross Nonpareil.—*H. R. B.* 1, Newton Wonder; 2, Beauty of Kent; 3, Brabant Bellefleur; 4, Reinettes Franche; 5, Golden Noble; 6, Mickleham Pearmain; 7, Ashmead's Kernel.—*J. J.* 1, a very fine fruit of Dumelow's Seedling (Wellington); 2, Kentish Pippin; 3, Langton Nonesuch.—*G. H. S.* 1, The Queen; 2, King of the Pippins; 3, Waltham Abbey Seedling; 4, Dumelow's Seedling; 5, Bramley's Seedling; 6, not recognised.—*H. E. C.* 1, Pear Vicar of Winkfield; Apple Bigney's Nonesuch.—*G. E.* 1 and 2, King of the Pippins; 3, Norfolk Beefing; 4, Bramley's Seedling; 5, not recognised, most likely a local variety; 6, Tower of Glamis.

NAMES OF PLANTS: *R. W. V.* The Salvia is *S. pseudo-coccinea*, the hairy-stalked, scarlet Sage. The white-flowered climber is *Araujia sericifera*, known also as *Physianthus albens* and *Araujia albans*. The flowers are capable of ensnaring moths and other insects. A correspondent stated in our issue for October 31, 1896, p. 523, that he found seven moths entrapped, including two large privet hawk moths (*Sphinx ligustri*) and five pot-herb moths (*Hadena oleacea*), and other insects.—*T. J.* 1, *Crocosmia orientalis sanguinea*; 2, with opposite leaves is either the cut-leaved Persian Lilac or a Jasmine (too shrivelled and broken to identify); 3, *Fraxinus excelsior heterophylla* (these two specimens were numbered one).—*Florence.* Varieties of *Pernettya mucronata*.—*R. B. R.* *Cheshire.* The plant sent with the Balsam is *Cuscuta reflexa*, a species of Dodder, a parasite belonging to the Convolvulaceae. *C. reflexa* is not a British species.—*G. E. G.* We cannot name the variety of Zonal Pelargonium, or Geranium as you call it, from a shoot and leaves only. You had better wait until the plant is in flower, and then send a specimen to some nurseryman who makes a speciality of Pelargoniums for bedding purposes. If you find that the plant does not bloom satisfactorily, it would be well to cultivate it in as poor a soil as possible.—*A. J. Collins.* 1, *Salvia azurea grandiflora*; 2, *Ceratostigma plumbaginoides*; 3, *Eriogonum mucronatus*; 4, *Caryopteris Mastacantha*; 5, *Cistus ladanifer*.—*K. L.* *Alternanthera versicolor* and *Salvia splendens*.—*C. E. C.* 1, *Pittosporum tenuifolium*; 2, *Boussingaultia baselloides*; 3, *Myrica Gale*; 4, *Begonia* species, send when in flower.—*W. Brooks.* *Vitis heterophylla*.—*W. R. C.* 1, *Arbutus Unedo* (the Strawberry Tree); 2, *Escallonia* species, probably *E. macrantha*, but the specimen is insufficient to identify with certainty.—*Dennis Rose.* 5, *Aster Novi-Belgii* Ariadne; 6, *A. N. B.* Purity; 8, *A. Novae-Anglie rubra*; 10, *A. ericoides*. The others

were quite withered.—*B. W.* 1 and 2, seedling forms of *Cupressus Lawsoniana*; 3, *Thuja gigantea*.—*A. Campbell.* 1, *Magnolia tripetala*; 2, *Tilia platyphyllos* (*T. grandifolia*).—*T. O.* 1, *Odontoglossum nevium*; 2, *O. Lindleyanum*; 3, *Oncidium oblongatum*; 4, *Dendrobium moniliiforme*.—*Constant Reader.* *Viburnum Opulus* (Guelder Rose).—*W. H. C.* *Sedum carneum variegatum*; 2, *Helxine Soleirolii*.—*Talfor.* *Eucumis regia*.—*S. McG.* *Lomaria Boryana* and *Athyrium filix-femina* Fieldiae.—*Chewton.* *Vitis heterophylla*.—*F. W. S.* *Urceolina pendula*.—*E. S. S.* *Norfolk.* 1, *Cydonia japonica*; 2, *Olearea Haastii*; 3, *Cistus ladanifer*; 4, *Andromeda japonica*; 5, *Veronica Andersonii*, garden form; 6, *Cassia chrysophylla*; 7, *Lycasteria formosa*.

POINSETTIA AND BEGONIA: *F. R.* We do not find anything the matter with the Poinsettia (*Euphorbia pulcherrima*), but the Begonias appear to have suffered a check from some cause, as the ends of the shoots are starved and ill-nourished.

POTATO: *J. W. D.* The tubers are affected with ordinary scab. The affection is only "skin deep," and the tubers are just as valuable for consumption as those with clean skins. Indeed, it is frequently found that scab Potatoes are more "floury" when boiled than ordinary tubers, and for this reason are preferred by many people. In order to prevent scab another season, you might immerse the seed tubers for two hours in a solution of one pint of commercial formalin (formaldehyde, 40 per cent.) in 36 gallons of water. Add acid manures to the soil before planting the tubers, withholding organic manures. Sprinkle flowers of sulphur around the sets.

ROYAL HORTICULTURAL SOCIETY'S EXAMINATION: *G. G. Devon.* For information respecting the examinations of the Royal Horticultural Society apply to the Secretary, Royal Horticultural Society, Vincent Square, Westminster. Respecting the advertisers who offer to conduct classes by correspondence in connection with these examinations, we are not in a position to recommend one or the other, as obviously this could only be done after an examination of the tutors themselves.

STOCKS FOR FRUIT TREES: *Brown.* The term "free" stock is applied to stocks raised from seeds obtained from Apples without regard to variety, such, for instance, as may be obtained from cider mills. The wild or natural stock is raised from seeds obtained from the wild crab, whilst the Paradise or dwarf stock is a surface rooting stock on which Apples are grafted for cultivation as Cordons, Espaliers, or even Pyramid trees. The same terms apply to stocks used for Pear trees, except that the restricting stock is the Quince and not the Paradise. Nectarines and Peaches are budded, or grafted on seedling stocks of the Almond, Peach, and certain varieties of Plum. Almond and Plum stocks are more frequently used, being less tender than Peach stocks.

VINES: *J. P. O. D.* The best plan to adopt is obvious, namely, remove the border, and make a fresh one on the lines recommended in these columns on September 30 last. You must settle for yourself whether it is necessary to plant new canes, for this question can only be determined by examination of the plants now in the house. If you plant afresh, it will be well to select early ripening varieties, such as Black Hamburg, Royal Muscadine, Madresfield Court, and Foster's Seedling. The roots may be allowed to grow outside as well as inside. If the glass of the roof is shaded by trees, such trees should be removed, it being important to expose the vines fully to the sunshine.

WEEDS ON LAWN: *E. L.* Hand weeding is the best method of getting rid of the Bind-weed and other weeds you mention, but, failing this, you may make frequent small applications of nitrogenous manures, such, for instance, as Sulphate of Ammonia. This will encourage the growth of the true grasses, which may eventually succeed in smothering the weeds.

Communications Received. P. C. T. B. H. Wool. T. R. & Co.—A. J. W. J. E. T. Burbridge Wells—C. G. A. A. G. Ashington Upton—W. H. P. H. R. Preston—C. C. Z. L. Shrewsbury—H. B. W. H. G. R. H. C. W. T. F. G. W. S. West End—T. E. E. E. (thanks for is for F.G.O.F. box)—A. & C. P. Crystal Palace Co.—H. J. V. D. R. H. M. E. M. S. A. Sevenoaks—F. W. N. M. C. R. Q. M. C. R. H. R. H. L. L. L. L. J. S. W. W.

Eucumma ulmoides, a plant which furnishes rubber, was making rapid growth, being evidently suited to its southern home. *Aralia Sieboldii* assumes the character of a very large shrub in these gardens, and *Leptospermum bullatum* was a

sheet of flower and seeds at the time of my visit. Close by it is planted a very rare variety—*L. Chapmanii*, which was flowering for the first time this summer. This flower, instead of being white, has a deep rose-coloured centre edged with light rose, forming a beautiful contrast. A specimen of *Rhaphithamnus cyanocarpus*, a plant rarely seen in the open in these islands, was 10 feet wide and 8 feet high, and bore little flowers of French-grey colour which are succeeded by blue berries. The plant has a distinct, Holly-like appearance, and grows best in a dry, peaty soil. Amid all these rare and choice plants a beautiful tropical group luxuriates (see Supplementary Illustration), *Chamærops Fortunei* and *C. humilis* were in magnificent health, quite different from that of the majority of these plants growing out-of-doors in Great Britain. They are surrounded by *Cordyline Banksii* and its variety *erythrorachis*, a most delightful plant, the red venation of the leaves giving it a distinctly bright appearance, especially when the leaves are surmounted by whorls of scented flowers.

The rock garden at Ashbourne (see Supplementary Illustration) is one of the finest examples of modern Alpine gardening in the British Isles, and certainly the best in Ireland. On our way to the rockery we passed a specimen of *Decaisnea Fargesii*, an interesting bush discovered in China by the Abbé Farges, and introduced to Europe by Mr. Maurice de Vilmorin. Its peculiarity lies in the fruit which is produced from somewhat insignificant, dull-yellow flowers. The fruits are formed in clusters of from two to five, and are cylindrical in shape, somewhat resembling huge azure-blue caterpillars hanging from the branches. Such uncommon shrubs as *Plagianthus betulinus*, *Pterocarya adiantifolia*, *Prumnopitys elegans*, *Escallonia organensis* (a beautiful Brazilian form), *Teucrium parviflorum*, *Pittosporum patulum*, *Olearia Solandri*, *O. insignis*, *Osteomeles anthyllidifolia*, and many others were noticed. Specimens of *Ilex Pernyi*, *I. insignis*, and *I. fragilis*, growing in company with large specimens of *Buddleia Colvillei* and *Pittosporum Mayi pictum*, 20 feet in height, attracted my attention.

Acer oblongum and *A. carpinifolia* were also noticeable, and just by the entrance to the rock garden is a splendid clump of *Viburnum plicatum*, the flowers covering the shrubs as with a sheet of snow.

Many gems of the Alpine flora are met with in the rock garden proper. There is a batch of *Cyananthus incanus*, a plant of rare beauty. Further on the rock garden opens out vistas of many rugged hills and deep vales, and in the distance a stream dashes in torrents from the heights above, and rushes on its rugged way down one of the most delightful valleys that was ever designed by a landscape artist.

Plants of *Cypripedium spectabile* and *C. macrantha* grow in colonies, as though they were in their own native home (see fig. 137). *Onosma albo-roseum* grows in clumps from 12 inches to 18 inches across, the plants being exceptionally vigorous and healthy. *Haplocarpha scaposa*, which Mr. Beamish introduced from the Cape, has the appearance of growing quite well in its new habitat.

Saxifraga lingulata Albertii (fig. 138) evidently a variety of, or very nearly related to *S. lantascana*, abounds in such a way as to crowd its flowers into a dense mass concealing the foliage. There is little doubt that this plant is one of the best of the encrusted-leaved *Saxifragas*, and certainly the most floriferous. Other *Saxifragas* include the true *S. icelandica*, growing in a cleft in a vertical position, such as is generally occupied by *S. longifolia*. *S. Griesbachii* nestles in the chinks close at hand, with *S. Ferdinandi Coburgii* and other *Saxifragas* too numerous to mention. Close by, I noticed the rare *Oxalis adenophylla* with its curious, crinkled leaves and rose-coloured flowers.

Colonies of *Lithospermum rosmarinifolia*, *L. prostratum*, *L. graminifolium*, and *L. intermedium* were exceedingly fine. The ground was carpeted by *L. prostratum* interspersed with *Arenaria montana*, hanging over the surface of

Moltkæa petraea, a near relative of *Lithospermum*, was also in full flower; this plant has a glaucous appearance, like the Lavender, and its beautiful flowers remind one of a *Lithospermum*. *Rosa sericea* was situated in such a position that the sun shone through its large red spines, producing a beautiful effect.

Genista dalmatica, one of the smallest of the Gorses, furnishes the top of one of the miniature mountains. *Teucrium fruticans* specially appeals to those who love glaucous foliage, and in this garden it assumes the size of a large bush; the flowers are of a sky-blue colour. *Corylopsis parviflora*, *Olea europæa*, and *Davidia involucrata* are other notable plants included in this uncommon garden.

Passing out of the rock-garden, I noticed a fine bush of *Daphne oleoides* in full flower.

On the top of a hill, *Pinus insignis*, *P. Montezumæ*, *P. flexilis*, *P. coccinea*, *P. patula*, *P.*



FIG. 138.—*SAXIFRAGA LINGULATA ALBERTII* AT ASHBOURNE.

the rock. *Æthionema kotschyana* (see fig. 139) is one of the most beautiful and rare plants that Mr. Beamish possesses. When in flower it is a veritable blaze of carmine-pink.

Another rarity observed, although not in flower, was *Anemone Faminii*, with its giant leaves, much resembling those of *Saxifraga palmata*. That delightful species, *Viola bosnaica*, studded some of the slopes of the rock-garden. Of the numerous *Campanulas* planted in the rock-garden, I will mention only *C. muralis*, which was a sheet of flower stretching up the slopes of the western bank. One of the smallest of the shrubs that furnish the hilltops and the steeper banks is *Bryanthus erectus*. This plant is a hybrid between *B. empetriformis* and *Rhodthamnus chamæcistus*. It is a difficult subject to cultivate, but Mr. Beamish has succeeded with it.

Tiœcote, *P. Khasya*, *P. Merkusii*, *P. Hartwegii*, *P. palustris*, *P. Ayacahuite*, *P. Armandii*, *Picea omorica*, *P. pungens pendula* Kosteri, *P. violacea Waltzii*, *Sciadopitys verticillata*, *Taxodium mucronatum*, and *Torreya myristica* are all growing in splendid vigour. One of the most beautiful Conifers in the collection is *Picea violacea Waltzii*, with its glaucous-white foliage.

Along a small upland valley is, perhaps, one of the most surprising features of the garden. Here, situated in a little sun-trap, are numerous tropical plants, among them *Musa japonica* or *Basjoo*, which has hitherto survived the Irish winters unharmed, *Aloes*, and various succulents, surrounded by such rare trees as *Casalpinia japonica*, *Genista fragrans*, *Perovskia atriplicifolia*, *Guevina avelana*, and *Dendromicum rigidum*, 12 feet high.

There are also numerous plants introduced by Mr. Wilson from China, and others from New Zealand, brought home by Captain Dorian Smith. Near at hand was a plant of *Agave filifera filamentosa*, with a fine spike of flowers. Descending the hill, one catches a beautiful view of the rock-garden below. A long path stretches from the dwelling house to the rock-garden, bounded on either side by *Cordylines* and arching Yews, and this is the only formal arrangement in the whole of Mr. Beamish's garden.

On a sheltered wall of the residence, which is entirely covered with creepers, *Smodingium argutum* and *Fremontia californica* were observed in glorious flower, and *Solanum crispum* towering to the full height of the wall. A plant of *Vitis Henryi* in a northern corner is 30 feet high, and as much in width. There are also specimens of *Vitis Thomsonii*, *Actinidia Kolomikta*, *Clematis Pratii*, *Ercilla spicata*, *Cassia corymbosa*, *Manettia bicolor*, *Habrothamnus fasciculatus*, and last, but not least, a fine *Mandevilla suaveolens*, which, at the time of my visit, was covered with flower-buds.

The paramount impression made upon the visitor is that this is no ordinary garden. A natural wildness prevails everywhere, yet perfect harmony in colours has been achieved. The gardener is Mr. Williamson, whom Mr. Beamish rightly regards as a man who places the health and general success of his plants above everything else. W. H. Paine.

THE ROSARY.

CULTURAL HINTS FOR NOVEMBER.

AFTER the recent rains Roses may be lifted and transplanted with ease, and seldom has the wood been more thoroughly ripened. Complete the planting this month of hedge briars intended for grafting as standards, also the cuttings for raising a supply of dwarf stocks. There is considerable difference of opinion amongst even the most experienced Rose growers respecting the benefits or otherwise of protecting Roses. Personally, I am not in favour of much protection being afforded, and certainly not to the extent to which it was practised formerly; nor do I like the plan of mulching with manures or litter, which substances retain a great deal of moisture; for I am convinced that this, combined with frost, is doubly harmful. My aim is to keep the plants, and especially their bases, as dry as possible during frosty weather. But the tenderness of certain varieties must be borne in mind, also the district, and whether the situation of the garden is low, and consequently more subject to the influence of frost, before arriving at a decision. Sprays of Heath, Spruce, Birch, or similar plants may be got in readiness for sticking into the ground upon the exposed side of the plants to break frost-laden winds, which seem to do more harm than a frost of greater intensity in calm weather. The ordinary loose litter does not protect the plants from dangerous frosty winds, because it is blown away into sheltered corners where it is not needed, leaving the Roses fully exposed. Branches stuck in the ground are more permanent, by no means untidy, and can be fixed or removed in a few minutes. They both answer the purpose of breaking the wind and prevent the accumulation of excessive moisture.

Always make a practice of drawing some soil around the base of dwarf Roses, both as a means of keeping this important part of the plant dry, and also as a capital and almost invaluable way of warding off frost, for, provided the bottom eyes are kept round, the plants will come through very severe winters safely. Proceed with the planting of Roses as soon as the ground will allow, but do not tread upon newly-trenched soil when it is wet. Spread out the roots and add a little soil, then tread the ground, which is better than waiting until all the soil has been added before making it firm.

ROSES UNDER GLASS.

The most forward pot plants may be pruned and started into growth in a temperature of 55° to 60°, and their management will be easier if a small house is given up to them entirely. Do not prune such climbers as *Marechal Niel*, *William Allen Richardson*, and *Pierre Cochet* except to remove any small, twiggy growths that were overlooked or have formed since the summer pruning. All long growths should be retained so far as they are sound, and this applies to those trained on walls or the roof of the house. Ordinary, free-growing varieties should not be

the house too close for a while; the plants will be better for all the air and light available so long as the requisite temperature can be maintained without danger from draughts.

GRAFTING UNDER GLASS.

Grafting indoors should now be commenced, and if stocks were potted as advised they will be in an excellent condition for the purpose. Good seedling briars are preferable to rooted cuttings as stocks, because they have very little pith and may be grafted direct upon the roots, thus avoiding sucker-formation later. Manures and leaf



FIG. 139.—*ETHIONEMA KOTSCHYANA* AND OTHER PLANTS ON THE ROCKERY AT ASHBOURNE.

pruned quite so hard as in the case of similar plants when growing in the open, nor will they be carrying quite so much wood; but keep the centre of the plants clear from twiggy wood. In our establishment we require a quantity of fairly good blooms rather than a few of extra quality. If the latter are wanted the pruning must be severe and the number of blossoms curtailed. Be sure that the wood of the plants is quite clean before forcing. If the old leaves are cut off and the wood well syringed with a rather strong insecticide, several pests may be destroyed that would otherwise increase rapidly. Do not keep

soil should be avoided, as they encourage fungi to grow in the close propagating case. Fresh yellow loam and a little coarse sand are all that is necessary. Tiles or slates are better than wood to stand the pots upon, with a layer of sand or washed ashes to keep them firm and maintain a uniform moisture. Let a few of the stocks be introduced to warmth about a fortnight before they are grafted, it being better to have the stock a little in advance of the graft. Future batches may be introduced as the propagating case is emptied. Any ordinary propagating case having a regular bottom heat will answer the

purpose. I would rather not have a pine inside the case, because it would dry one part more than another. Pipes enclosed beneath it are the best, for the heat may be regulated much better from below the bottom of the frame. Squares of glass laid over the case and resting against a piece of wood so as to form a lean-to are more suitable than fixed glass, which is not at all necessary when the case is protected by the house. One may easily get to any of the contents of the frame by moving one or more squares of glass. Ventilation may also be provided to any desired extent by leaving more or

possible, only allowing room for the graft to be fixed. If the graft is smaller than the stock it is cut in the form of a wedge, and slipped into a corresponding cut in the stock. The other method is that known as side or whip grafting, which consists of making a slanting cut at the base of the graft, and an upward cut of corresponding size and length upon the stock, so that the barks of both fit closely together. Tie the scion and stock firmly, and be sure that they fit as true as can be managed; a little practice will soon secure this at the first cut. Grafting wax or mastic is unnecessary when the case is kept

with due regard to the light and temperature. In about six weeks time the more forward plants may be removed from the case, and stood in the same house until partially hardened. They may be slightly syringed overhead at that stage. Any plants that are backward may be kept close in the case. It is unlikely that all the plants of one batch will develop uniformly, and the varieties will also behave differently. If possible, select grafts from matured wood of the previous season's growth from plants under glass or in pots. *Practice.*

SOME ADVANTAGES OF AUTUMN CULTIVATION.

It will be admitted that the past season has been one of the most trying which has been experienced for some years. Want of water has been the chief trouble, though there have been many instances where the ill-effects have been very much reduced by a thorough system of cultivation. Such a system must have its beginnings in the autumn, and its chief effects are improved water capacity and texture or tilth, increased availability of plant food, and a large measure of freedom from insect and fungous pests during the following season.

WATER CAPACITY.—In regard to water capacity, even in our temperate climate the chief cause of reduction of yield by a crop is want of water at some period during its growing season. After such a summer as the last the ground became very hard and solid, so that the autumn rains are unable to soak into the soil. Some may think that after the rain we have had of late, this is unlikely, but only quite recently I found many dry places within a few inches of the surface. This is probably in part due to air, which, having collected in the soil during the dry weather, prevents rain from penetrating. Stirring will allow this air to pass out and then rain, instead of running off the surface into the nearest drain, will be able to enter the soil. Another effect of stirring is to make the pore space larger, so that the soil will soak up more water. There are not many experimental results which can be applied to soils of varying type, but with an average light garden loam it can be said that soil stirred in autumn will provide one-eighth to one-sixth more water to the crop during the following summer.

TEXTURE AND TILTH.—We are considering texture in the sense of workability, not with immediate reference to the physical structure of the soil. After the past dry season the soil particles are closely packed, and tend to form hard lumps. If these lumps are further consolidated by being trodden on, it will be very difficult to get a tilth in the early spring. Some agency must, therefore, be found to break down these lumps, and the most successful will be frost, after the ground has been laid up rough. The freezing of water causes it to expand. This expansion forces the particles apart, and when the thaw comes the whole lump falls to pieces, giving a friable seed bed.

AVAILABILITY OF PLANT-FOOD.—Practically all the constituents of the soil are unavailable to the plant until they have been exposed to weathering or decomposing agents, such as frost, running water, oxygen, carbon dioxide, &c. It will be seen, therefore, that stirring the soil by exposing it to these agencies tends to add to the available plant-food. Still more is this the case when organic manures are dug in at the same time, as, by their decomposition, they give the solvent agent, carbon dioxide, and provide food for the organisms which absorb nitrogen from the air and render it available to the plant. Bacteria also take part in many other processes by which the inorganic foods are converted into soluble forms.

FREEDOM FROM PESTS.—In countries where there are no frosty winters insects and fungous diseases abound. With us these are far more likely to be killed if the soil is laid up so that frost can penetrate to all parts. Birds also can do good work when the soil is open. *T. W. Taylor.*



FIG. 140.—*Linum catharticum* ON THE ROCKERY AT ASHBOURNE.

less space between the squares. Every precaution should be taken not to allow moisture to condense in the case. Perhaps the best way to avoid this is to wipe the glass daily or turn it over, when the damp on its surface will disappear. Always have the soil moist enough to do without water for some time after the graft is fixed, as overhead waterings cause decay from the moisture getting between the scion and the stock. There are several forms of grafting, and I will describe the two most generally practised. The stock is cut off as close to the roof glass as

quite close. Should water be needed, let it be afforded very carefully in the pot without wetting the graft, as it is most injurious to wet the latter before the union is complete. Keep the frame perfectly dark at first, and not warmer than 65° to 70°. As callus forms and growth pushes out from the graft, gradually expose the plants to the light, but do not allow strong light to reach them until leaves have formed, and only allow a very little then. Fresh air may be given by leaving the squares of glass a little way apart, but exposure should be very gradual and given

FLORISTS' FLOWERS.

HOW TO CULTIVATE SWEET PEAS TO FLOWER IN MAY.

The present is a good time to sow Sweet Peas for raising plants to flower under glass in April and May. The seeds should be sown in shallow boxes or pots, and when the seedlings are about 2 inches high they should be potted singly into 3-inch pots, using a fairly heavy loam with a little silver sand added to keep the soil open. After potting place them in cold frames, where they may remain till early in February, giving them ventilation on every suitable occasion. Never coddle Sweet Peas, for it means ruin to them. Early in February, the plants should be transferred to their permanent quarters either in prepared trenches, through the centre of a cool-house or in pots, as the case may be. I prefer planting them out in trenches, as they are less liable to suffer through becoming dry, and this method also allows the plants more root room. The centre of a Tomato house suits them: very well, and if the house is only about 12 feet wide, a single row is sufficient, and the space so utilised is often wasted. If the house is large, two or three double rows may be planted, leaving just sufficient room to get between the plants for gathering. American Carnations and Sweet Peas do very well together, as they both require plenty of light and air, but very little fire heat. In preparing the trenches for inside culture, take care not to overfeed the plants with manure, as this would cause too sappy a growth. From the time of planting all the air possible should be admitted to the plants, otherwise they will become drawn and weak, and bud-dropping will result. Plants cultivated in trenches should be allowed one foot space from each other, and for 12-inch pots three plants are sufficient for each pot. In cultivating for exhibition, each plant should be restricted to three or four shoots only. Strong flowers, such as *Elsie Heroet*, *Maud Holmes*, and others, will carry three, but weaker varieties, such as *Earl Spencer* and *Dazzler*, are better on two stems, and all lateral growths should be removed as soon as they appear; if the flowers are wanted for table work or market purposes, this is not necessary. The best method of training plants grown in trenches is to place tall stakes in pairs at intervals of about 12 or 15 feet, one each side of the row, and the tops of the stakes reaching well into the centre ridge of the house. Then strain thin galvanized wire (commencing about a foot from the ground) from one stake to the other as far as required, and add other wires as the plants grow (about every 2 or 3 feet). The growth can then be trained from one wire to the other by simply fixing a piece of raffia in the required direction and tying the growth to it. Then an occasional tie to the wire keeps the whole thing firm and steady.

Water must be given sparingly in the early stages, but when the plants are growing fast, a plentiful supply is necessary. An occasional application of weak manure and soot water is a great help during the growing period, and as the flower-buds appear a dressing of Macreth's special Sweet Pea manure will greatly help the length of stem and the colouring of the bloom, especially such colours as *Dazzler*, *Maud Holmes*, *Geo. Herbert*, and *Helen Lewis*. Plants grown in pots will require more feeding than those in trenches. Some varieties are more adapted for culture under glass than others, and the following are to be recommended:—*Freda*, white-waved; *Jack Tar*, blue; *Edrom Beauty*, orange-pink-waved; *Stirling's Stent*, bright orange; *George Herbert*, carmine; *Maud Holmes*, crimson; *Aurora Spencer*, rose-striped; *Elsie Heroet*, red-tinged; *Mrs. Charles W. French*, more, buff, picotee-edged; *Mrs. Andrew Ireland*, bicolor; *Mrs. Hugh Dickson*, cream-pink; *Dazzler*, a flame-coloured flower; *Countess Spencer*, pink; *Clara Curtis*, cream; *Paradise*,

ivory; *Iris*, pale shrimp; *Tennant Spencer*, mauve; and *Masterpiece*, lavender. If carefully grown, Sweet Peas can be had in bloom by the middle of April, and will well repay the trouble taken with them, or they can be more easily cultivated for flowering at the time of the International Horticultural Exhibition, which will be held next May. *George Herbert, Golden Common, Winchester.*

MARKET GROWING AND LOW PRICES.

THE extraordinary depreciation in the value of market garden produce which has been so noticeable in recent years and this season seems to be more marked than ever, is a matter of very serious moment to those who try to grow for profit, and to the small grower especially. For years past the latter has led a struggling existence, and if prices continue to fall as they have been doing recently one cannot see how the man with moderate capital, and with nothing to fall back upon to tide him over bad seasons, is to continue in the business. The small man who has a retail trade and can supply customers direct will always, of course, be able to hold out better than his fellow who from choice or necessity grows only for the wholesale market. But competition in the retail business is likely to become more severe as time goes on, simply because many who did not care about it before will be driven to retail trade by the low and unprofitable prices obtained for their stuff in the wholesale market.

In order to illustrate the unhappy position of the small market grower at the present time—the big grower, of course, is equally affected, but producing on a larger scale he has a better hold on the salesman, and with a bigger turn-over can afford to take smaller profits—let us look at the price of Tomatoes to-day as compared with what it was some 20 years ago. This year in the middle of July best English Tomatoes were selling in the London market at 2s. 6d. to 3s. per dozen pounds; 20 years ago the grower would have thought himself badly treated if at that time of the year he could not have made exactly double those prices. At that time of day Tomatoes seldom dropped to 4d. per lb. wholesale until August, and at that figure some of us used to ask ourselves whether there was very much profit in the business. We always considered that when the price went to 3d., as it sometimes did at the latter end of August—though seldom for more than a week or two—we were losing money, and we did everything to keep the crops back for the small rise that generally occurred a little later. Sometimes, especially if the weather happened to be wet and dull, Tomatoes would command July prices in September, and we can remember the time when we have finished off a late crop in October at 6d. and 7d. a lb. For our early crop, which came in at the latter end of May and beginning of June, we used to get 1s. 3d. and 1s. 6d. a lb., and we always reckoned on a 1s. up to the middle of June. By the latter end of that month we thought 8d. and 9d. quite low enough. Nowadays that price is reached at the beginning of June and sometimes earlier.

The fall in the price of Tomatoes and other produce is, of course, due to two things—increased competition at home and increased supplies from abroad. The price is lower than usual this year owing, no doubt, to the fine weather, which has brought on the outdoor crop more abundantly and earlier than usual. In some years, of course, the outdoor Tomato is a practical or complete failure. It seems impossible to suppose that prices for Tomatoes can fall much lower—that is to say, that they can be worse next year than this, for they certainly will go lower in the ordinary course of events up to the end of August or beginning of September, especially if the outdoor crop proves to be heavy and is not cut off in its prime by bad weather. But when "seconds," which years back used to fetch 3d. per lb. in August, are sold in the middle of July at 1d., one feels afraid

to suggest what may ultimately happen. Prices, perhaps, are not quite so bad as they appear—to-day we have more prolific and quicker-growing varieties than we had 20 years ago, so that we can get a better yield per plant, and market at least a portion of the crop before prices fall to their lowest.

But unless the small grower takes special pains to grow only the best varieties and most prolific strains—this usually means a good deal of trouble in selecting and saving one's own seed—and practices the highest methods of cultivation at present known, he has a very small chance of making both ends meet. We used to consider that we did well if, in a house containing, say, 800 plants, we managed to get a yield of 3 lbs. to 4 lbs. per plant, and such a house might be worth £50 to us in the season if all went well, and neither the wireworm nor the disease blighted our hopes. To-day, even with a greater crop, we must be content with very much less money, and a little bad luck will effectually wipe out all our profits. The little man who can sell a ton or two of Tomatoes retail during the season is generally able to take twice as much money as his neighbour who sends to market and grows a similar amount. Yet the latter has just the same amount of labour, and labour, as those who have tried the crop know only too well, is a pretty serious matter in the case of the Tomato. For many years the Tomato has been regarded as a staple crop, but if it is not ever again going to pay better than it does at the present time, the little man will be obliged to look upon it merely as a means of employing his spare time and labour from other, and more profitable, summer crops.

Meanwhile it can hardly be said that the consumer is deriving the full benefit of the drop in the price of Tomatoes and other market produce. There has, it is true, been a reduction in some cases by the retail shopkeeper, but this reduction is not in proportion to the fall in wholesale prices. One can only suppose, therefore, that the retailer is taking something more than his legitimate profit, because, if he were not, one would be able to buy Tomatoes and other things at about half the prices that were asked 20 years ago. That, as every consumer knows, is not the case. Take Potatoes as a case in point. These have been exceptionally cheap this year—the average price for English, best quality, on July 12 was 2s. 6d. per bushel of 56 lbs., and at the same time they were being sold in the shops at 2d. per lb. Second English were quoted in the market as low as 2s. the bushel, but nowhere could one find them being retailed at a lower price than that already mentioned. To sell at 9s. (allowing the odd 4d. for loss in weighing out) that which costs only 2s. or 2s. 6d. (plus another 6d. perhaps for carriage) is surely rather more than a legitimate profit. Twenty years ago the wholesale price of best English Potatoes in the middle of July would be about 4s. a bushel, but the consumer could buy them then almost as cheaply as he can to-day.

One supposes that, in accordance with the usual laws of demand and supply, more Potatoes and other stuff would be sold in the shops if the consumer could get them at a lower rate, but if the retailer by keeping up his prices can get as good a profit on a certain quantity as he could on double the amount sold at a reduced price, it is natural, of course, that he should prefer the former alternative. The grower is therefore doubly hit—his sales are limited by the comparatively high price still charged by the retailer, so that he cannot say to himself by way of comfort at the reduction in wholesale prices, "Well, if prices are lower than they were, I can make up for it to some extent by selling a greater quantity at a time." On the contrary, he is often obliged to reduce the already low market price to clear his stock, and that in the end makes matters worse than ever because it tends to the lowering of prices in the future. Altogether, the outlook for the market grower just now appears to be anything but bright, and this is particularly so in the case of the little man. *P. B.*

The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

DENDROBIUM.—Most species, hybrids and varieties of *Dendrobiums* have now finished their season's growth, and are gradually reaching the point at which they become almost inactive. Both the evergreen and deciduous plants gain great benefit from a good rest when they have been prepared for it by making a strong, healthy growth during the previous season. Hard, well-developed growths do not shrivel during the winter, even when kept dry, whereas soft, badly-developed growths shrivel badly, and in the latter case the rest may prove injurious rather than otherwise, and even prevent the plants from flowering satisfactorily. As soon as growth is completed, which may be determined by the end leaf of each pseudo-bulb being fully developed, the plants should be gradually afforded a cooler temperature, and, at the same time, the amount of moisture, both at the roots and in the atmosphere, must be decreased. Nevertheless, there should not be absolute dryness of the rooting material for any length of time even during the resting period. The good old species *D. nobile*, and its numerous hybrids, are always classed in the deciduous section—and the treatment they require is indeed the same—but they tend to retain their leaves through the resting period. These deciduous plants, while resting, should occupy a house where a cool, intermediate temperature is maintained, and there is plenty of ventilation and sunlight.

EVERGREEN DENDROBIUMS.—Plants of the *D. thyrsiflorum* group, such as *D. densiflorum* and *D. chrysotoxum*, have completed their growth. These require, with respect to resting, treatment like that advised for the deciduous species. Give them sufficient water only to keep their pseudo-bulbs, foliage, and roots in a sound and healthy condition. The species *D. Dalhousianum*, *D. moschatum*, and *D. fimbriatum* are quite another type of the evergreen section, for whilst they also require a prolonged season of rest, they must not be housed in such cool winter quarters. In a well-ventilated house where the temperature does not fall below 55° they rest well. These conditions, together with the comparatively dry state of the roots, cause the long pendulous spikes of gorgeous flowers to develop freely.

DENDROBIUM PHALENOPSIS SCHRODERIANUM. Plants of this species are now in flower, and no other kind is so attractive during the present season. When well grown, the blossoms are produced with the greatest freedom, and in the case of recently-imported plants the dry-looking stems contribute their share to the display, in addition to the spikes produced from the tops of the new growths. Until such time as the flower-spikes are removed, a moderate amount of moisture at the roots is needed, but afterwards, when at rest, much less water will be required. These *Dendrobiums* should occupy a warm house all the year round.

D. FORMOSUM.—This beautiful species is the best of the evergreen nigro-hibute section in which the leaves are retained on the stems of more than one season's growth. The stems, all furnished with black hairs, produce fine heads of attractive white flowers at this season, and these, when displayed together with *D. Phalenopsis Schroderianum*, form a very effective group. The treatment of *D. formosum* is, both during the growing and resting seasons, similar to that of *D. Phalenopsis*.

D. CHRYSANTHUM.—The long, pendulous wreaths of flowers produced by this species when grown in a natural manner are very beautiful. Unfortunately the blossoms seldom last for more than a fortnight. Although it is a deciduous species, it requires a rather different mode of treatment from that usually given to this section. The plants are not by any means constant in the time of flowering, but, as a rule, they are seen in bloom during late autumn and early winter, and as soon as the blossoms are passed the eyes at the base of the stems push again, and growth recommences.

Any plants in need of fresh rooting material should receive attention when their young shoots have attained 2 inches or 3 inches in height, and just when they are about to produce roots. Basket culture is best for this species, and, since they are vigorous plants, fairly large baskets may be employed. A well-drained compost of *Osmunda fibre* and *Sphagnum-moss* in as rough a condition as possible, mixing with this plenty of broken crocks and charcoal to ensure aeration, is suitable. *D. chrysanthum* grows best when suspended from the roof rafters of a well-ventilated house where an intermediate temperature is maintained, and as the plants are often active during the winter months, special care must be exercised not to over water the roots.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

CAULIFLOWERS.—Seedlings raised a month ago should now be ready for potting in sandy loam into 4-inch pots. Cauliflowers should be potted firmly, and they need a good watering directly they are placed in the cold pit. When the plants commence to make fresh growth, the lights should be removed, and only placed in position again when protection from frost or heavy rain is necessary.

CELERY.—The earthing up of this crop should not be overlooked, and the recent dry weather renders it necessary to pay particular attention to watering the beds freely before the final earthing-up takes place. Celery delights in moisture, and the beds should be thoroughly soaked with clear water with as little delay as possible. Do not place the soil too high about the plants, nor allow any to get in amongst the leaves which should be tied carefully together before the operation is commenced.

LEeks.—Give liberal supplies of water to late-planted Leeks and stir the soil between the rows in order to keep them growing as late in the season as possible. This vegetable pays for liberal treatment, and any plantations which have not attained the required size will benefit by a good watering of weak liquid manure from the farmyard.

FRENCH BEANS.—A good sowing of French Beans may be made now to yield a supply at about the end of December. Choice vegetables will be scarce in many places during the coming winter, but the consequent difficulties may be partly avoided by sowing an extra quantity of Beans at the present time. Seven-inch pots are best for winter use, and the soil may consist of three parts sandy loam, and one part decomposed horse-droppings, which should be broken up finely and mixed with the loam. The pots should be filled to within 2 inches of the rim and the soil made moderately firm. Seven seeds may be sown in each pot and covered with 1 inch of fine soil. The plants may require thinning, and it will be necessary to place some small twigs round the plants to keep them in an upright position. The temperature of the house should be 65° in mild weather, and 5° less if the weather is extra cold. Keep the plants near the glass, and make a frequent use of the syringe to keep red spider in check. Beans in pits from which supplies are now obtainable should be watered once weekly with weak manure water, and plenty of air should be given to the pits. While mild weather lasts, only a slight fire-heat will be necessary to keep the plants from damping, and a little air may be left on at night, with the same object in view.

GREEN HERBS.—Make immediate preparations for obtaining a supply of green herbs throughout the winter. Mint and Tarragon are easily forced if they are placed on a mild hotbed, over which has been laid a few inches of finely-sifted soil. The roots may be lifted carefully and placed close together on the bed in order to grow as much as possible in a limited space. Cover the roots with fine soil which should be watered in amongst them with clear water, applied at a temperature of 70°. In a few days growth will commence, when a light covering of fine leaf-mould may be spread over the plants; but care must be taken that the bed does not become too hot, or the roots will be damaged.

TRENCHING.—Advantage should be taken of dry days to convey manure to the different plots which are in need of trenching, so that this im-

portant work may be commenced as soon as possible. Ground intended for crops of Onions, Peas, and members of the Cabbage tribe should be trenched and manured heavily as early as possible; but that for Carrots, Parsnips, and Beets should be trenched without any green manure being applied, selecting for such crops plots which were manured last season. For all crops, deep cultivation will be found to repay the grower for the extra trouble and expense incurred.

POTATOS.—Tubers placed in temporary stores a month ago should be overhauled as soon as possible, in order to remove all unripe Potatoes which may have been picked up and stored at the time of lifting. Whilst this work proceeds, sufficient tubers for next planting season should be selected and placed in a cool, airy shed, where protection from frost can be given, and care should be taken that no tubers formed late in the season are selected for this purpose.

THE FLOWER GARDEN.

By R. P. BROUGHTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

SPRING BEDDING.—The preparing and planting of beds and borders for spring bedding entail a considerable amount of work. The soil needs to be in a very fertile condition, and should require no manure to be dugged into it now. In the case of light soils a thorough digging will not be necessary; it will suffice to merely loosen the ground with the fork, so as to facilitate the work of planting. When the ground is ready, it will not be a long process to insert the bulbs, as they may be planted very rapidly, making the soil firm when each bed is finished, and finally levelling the surface smooth. Manure may either be applied on the surface previous to making the soil firm, or it may be placed on in the spring. Wallflowers need to be planted rather deeper than they have been growing during the summer months, but other subjects, such as *Myosotis*, *Silene*, and *Arabis* should be placed at the same depth as before. In beds planted for effect I do not like the bulbs to be arranged at all formally. In the case of Tulips, for instance, it is a mistake to plant them wider apart than 6 inches or 7 inches, and they need not all, or even the larger number of them, be planted in rows, it being much better to group three, four, or five together, although the outer row must of necessity very closely conform to the edge of the bed. As a rule, flowers of self colours are to be preferred to varieties that are feathered, but exceptions may be made in the cases of *Keizerskroon* and *Duchess of Parma*, as these are very bold and striking sorts. *Rose Gris de lin* is a very pretty variety, and this also may be employed. Nevertheless, such varieties as *Chrysolora* or *Ophir d'Or* (yellow), *Wouvermann* (purple), *Colour Cardinal* (crimson), *Prince of Austria* or *Thomas Moore* (orange), and *Proserpine* (rose) are, on the whole, more satisfactory. I do not hold with planting a series of beds or even a single one with early Tulips only, but would include for an early display *Winter Aconites*, *Scilla praecox*, *Crocus biflorus*, and, for a succession, *Darwin* or *Cottage Tulips*. A very good effect is produced by employing *Delphinium*, *Fritillarias* (Crown Imperials), and *Muscari* border-oides together. For this combination I prefer Sir Watkin or any deep-yellow *Daffodil*, or a bicolor, or even a *Leedsii*, such as *Katherine Spurrell*, or, where it is possible, *White Queen*. It is surprising that, although there are many good yellow Hyacinths, these are seldom employed, yet is there any quite so sweet as *Ida*? Although I do not plant fancy *Polyanthuses* now, at one time four of our borders were planted with them. They made a grand display, and had a prolonged season of flowering, but they were so exhaustive of the soil that they were eventually banished from the garden. Those who cultivate them should introduce a layer, 2 inches deep, of spent manure from a Mushroom bed just below the surface of the ground, whilst a slight sprinkling of superphosphate is also beneficial. The plants should be planted thickly enough to touch each other, to produce the best effect. A very effective display may be made in spring time by planting special borders with broad masses of *Alpine Auriculas*, *Primroses*, and several early flowering members of the *Primrose* tribe. Where *Erythroniums* are employed, the improved varieties of *E. dens-canis* are very fine. Other subjects that may be utilised for spring

bedding are *Leucoum vernum*, *Muscari*, *Iris keldagae*, *I. reticulata*, and other *Iris*; *Tulipa Greigii*, *T. Kolpakowskiana*, *T. Duc van Thol*, *Aubrietia* in variety, *Fritillaria*, *Bulbocodium vernum*, *Anemone blanda*, *A. Robinsoniana*, double-flowered *A. nemorosa*, double *Ranunculus Ficaria*, *Galanthus Elwesii*, *G. plicatus*, *Ornithoglossum* and its variety, *Chionodoxa* in species, *Crocus* in variety, *Hepaticas* of all kinds. *Scilla praecox*, *S. bifida*, *S. taurica alba*, *S. italica*, *Jonquills*, *Myosotis*, *Adonis vernalis*, *Doronicum austriacum*, double *Saxifraga granulata*, double *Carmadine pratensis*, double *Daisies*, *Saxifraga sancta*, *S. Rhei*, *S. oppositifolia*, and *S. Bursleriana*. As a rule, it is best to plant these in liberal groups of each kind, so that the same plant or variety need not be repeated. *Narcissi* are sometimes introduced with these, but as *Daffodils* are usually extensively planted elsewhere in the pleasure grounds, they are better excluded from the beds, unless in the case of *Jonquilla*, *Campanelle Jonquil*, *Narcissus cyclamineus minor*, *N. c. minimum*, and *N. Capax plenus*. *Saxifraga cymbalaria* does well in strong soil, and propagates itself from self-sown seeds. A selection of annuals sown amongst the bulbous plants in May will maintain the interest of the border throughout the summer months.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Author Clinton Gardens,
Barnegat, N. J.

WALL FRUIT TREES. During favourable weather, planting should be pushed on with all possible despatch. Directly the leaves are all off the trees, winter pruning should be commenced, and as much of it as possible done before the bad weather sets in. It is much better in every respect that pruning should be done now, than to be left until the spring, although, in cases where summer pruning was properly attended to, there will not be much to be done in winter. When pruning this class of fruit tree, attention should be paid to the mode of bearing of the different kinds: some sorts bear almost exclusively on the young wood of the past year, as the Grape vine, Fig, Peach, and Nectarine; whilst others bear on spurs attached to the old wood, as seen in Apricots, Pears, Plums, Apples, and cherries. But, as there are exceptions to both of these, both sorts of wood must be pruned. In pruning Peach and Nectarine trees, it is necessary to have a regular distribution of well-ripened young wood, well provided with blossom, over every part of the trees. All the most naked shoots of the previous year should be cut away to a properly-placed young shoot. These may be shortened, if necessary, according to their strength and position.

BUSH FRUITS

BUSH FRUITS—The best method of planting is to grow in wire mesh cages, the plants to be bushy, fruit, and to fill up any gaps. To plant the young trees in the same place, and among the roots of the old bushes is a bad practice. First of all, remove the old roots, whether decayed or not, and also a sufficient quantity of the soil to allow of the fresh roots being spread out; scatter the old soil over the surrounding ground, and plant the young trees in a sufficient quantity of fresh soil. Trees large enough to be swayed by the wind should be staked securely immediately after being planted; three stakes forming a triangle are better than one stake placed close to the tree. By the former method the bush is steadied, and that injurious hole which, by the swaying of the tree, makes the stake worse than useless, is prevented from being formed. When the state of the weather is such as to prevent planting being continued, pruning can be done with advantage. Early pruners often get the best crops, but they are saving the pleasure of knowing that their trees have received seasonable attention, instead of having to hurry through the work in the spring. The soil between the bushes cannot be forked over too soon after the fall of the leaf. A thin mulching of seaweed over the surface of the soil makes an excellent dressing for the trees.

GENERAL REMARKS.—Proceed with the planting of fruit trees of all kinds, and never forget the importance, first, of providing good drainage, and, second, of making the holes wide enough to allow the free extension of the roots horizontally. It is always advisable to select such kinds and varieties as are known to succeed in the locality. If more

attention were paid to this matter we should not hear so much of failing crops. In the season just passed, some varieties of Apples, Pears, and Plums bore good crops of fruit in this neighbourhood, whilst others, similarly situated, had little or no fruit. I would advise young gardeners especially, when they go into a fresh locality, to consult other growers in that neighbourhood before planting largely.

PLANTS UNDER GLASS.

By JAMES HULSON, Gardener to LEOPOLD DE ROTHSCHILD,
Esq., Gunnersbury House, Acton, Middlesex.

ACALYPHA.—This new foliage plant may be given similar treatment to that recommended previously for *Codiaeums*; but, on the whole, I should prefer to select the lateral shoots rather than the main leaders. It will be found advantageous to have this kind of propagation done in advance. *Acalypha hispida* may still be doing useful service, but it will probably be found that suckers or small shoots are pushing forth at the base of the stem, and these will make good cuttings.

CYANOPHYLLUM.—This plant, together with any others with large, overhanging foliage, should be cut down if at all "leggy." Cuttings can then be taken in due course from the old stools, and early in the year good, young plants can be thus secured. The essential feature of a good plant is that it should be well clothed to the pot.

PANDANUS VEITCHII.—This species and *P. Bapistii* are often known to throw out at the end of the season small, grassy growths from the base. These are ideal growths out of which to form sturdy, dwarf plants; the true character can thus be ensured while the plants are still in small pots. With care, these small cuttings can often be removed with a root two at the base. The best thing in the case of either species, if the plant is grown too large, to remove the main crown, unless the plant is dispensed with altogether. Large plants do not look so well as smaller specimens.

SANCHEZIA NOBILIS VARIEGATA.—I have often wondered why it is that this highly ornamental plant is not cultivated more extensively. Given generous treatment it is extremely handsome, in appearance not unlike a *Codiaeum*, and when in flower it makes a very suitable subject for decorative purposes. It is a rapid grower.

TYPING AND TRAINING.—This applies more particularly to shrubby greenhouse plants, which may have been a little neglected during the summer. Labour expended on this work at the present time will be well repaid, if only by the increased amount of room which will thus be obtained. Greenhouse *Rhododendrons* (*Azaleas*) will be all the better for tying, if they are intended to be used as decorative plants. A good shape to adopt is that of the pyramid, as plants of this type provide the maximum of effect in the minimum of space. Cape Heaths hardly need any training if proper attention is bestowed on stopping the shoots, though in some instances a little tying and a little training are beneficial. Heaths should not be formally trained, and a little practice will soon show how they should be treated; if sticks are used, they should be either made of teak or painted green. For effecting the ties, green string or twist should be employed.

FRUITS UNDER GLASS.

PA 1, 14, 1000, Gardener to the Hon. ANNE GANN,
Allington House, Hertfordshire.

SUCCESSION VINERIES.—The work of pruning and cleaning later vines if carried out as soon as convenient will be beneficial to the plants, as it will allow of an earlier and longer rest. If a suitable Grape house or fruit room is available for storing the Grapes, these will last in equally good condition, cut and placed in water, provided they are examined frequently and bad berries removed from time to time. The same directions apply to pruning as were recommended for the earliest vines, and, as in that case, the rods and houses should be thoroughly cleansed. If the vines have been attacked by mealy bug, they should be thoroughly washed, and afterwards painted with the following mixture:—one pint of gas tar, two wine-glassfuls of paraffin, a 60-sized pot of flowers of sulphur, and three pints of clay. Boil these materials, adding sufficient

water for thinning. I gave this recipe in a previous Calendar, but repeat it for those who may not have seen it on the former occasion. After removing the old and loose soil from the surface of the border, and if the border is found to be dry, apply a good watering, then afford a top-dressing of new compost, composed of, first, a good sprinkling of bone dust and artificial manure, and next a layer of turves that have been stacked for 12 months, placing the turves closely together with the grass side downwards.

YOUNG VINES.—Any young vines that are planted in narrow, partially-constructed borders should be encouraged to ripen their growths by admitting a free circulation of air and keeping just a little warmth in the water-pipes. Those that were planted last spring as young, growing plants raised from eyes the same season, will have made fine long growths, but I would recommend that they be pruned back to the base. Dormant canes planted just as they were breaking into growth, and what are known as cut-backs, that is, canes two seasons old, should be shortened to the first wire of the trellis, that is, to within about 4 feet of the base, whilst those that were planted as only one season's growth should be treated as advised above. Supposing that a good growth has made and numerous roots are formed, next season's growth will be greatly improved by the addition of a top-dressing and further extension of the border. The soil and any refuse should be removed from the surface, in exactly the same manner as recommended for the whole borders, removing at the same time the face of the partially-built border made last season. A layer of whole turves, placed on the drainage grass side downwards, is placed to the distance to which it is proposed to extend the border, and a wall gradually and firmly built up with a good compost well worked in between the intervening space, making the soil thoroughly firm as the work proceeds, until the desired height is reached. To prevent any mishap by the border falling in, a support should be given by placing one or two stout boards along the front and back to raise them in position. If it is intended to raise the further part of the border from eyes of any particular varieties of well-known stocks, the growths as pruned should be carefully labelled and preserved by tying them in bundles and heeling them in until they are required for use. Any young vines in pots should be plunged either in leaves or ashes to the rims of the pots, to protect them from frost, and the canes trained round two canes or neat stakes.

THE NOLINEE.—Following his profusely-illustrated writings on Yucca and Agave, Dr. W. T. FLETCHER has published a monograph of the allied group Nolineæ in the *Proceedings of the American Philosophical Society*, vol. 1, pp. 405-442, plates 1-17. This small group of the Liliaceæ is confined to the dry region of North America, from Guatemala to Colorado and Carolina, with the greatest concentration of species in the dry uplands of Mexico. TRELEASE recognises four genera, naming *Nolina*, *Beaucarnea*, *Dasyliirion*, and *Calibanus*; but in consequence of divergent views of generic limits, many of the species, more especially those in cultivation, have a long and perplexing synonymy. Several have been referred to three out of four of the genera. TRELEASE refers his generic characters to the influence of attachment of the flowers, the ovary, and the seed vessel. The name *Calibanus* will be unfamiliar to horticulturists. It has been given to the plant figured in the *Botanical Magazine* (t. 5099) under the name of *Dasyliirion Hartwegianum*, and perhaps more generally known as *Dasyliirion Hookeri*; a name published a little earlier in the same year. Recent explorations have largely augmented the number of known species of the Nolineæ, and TRELEASE enumerates 27 of *Nolina*, one of *Calibanus*, seven of *Beaucarnea*, and 17 of *Dasyliirion*. Members of this singular group are comparatively rare in cultivation, but there are some fine specimens in the Succulent House at Kew. Notably *Dasyliirion acuminatum*, which has about a dozen names. The figures illustrating habit are very interesting. *Beaucarnea gracilis* is arboreous, with an enormous swollen trunk. *Nolina longifolia*, syn. *Dasyliirion longifolium* and *Nolina Carolina longifolia*, has a trunk 6 feet to 10 feet high, concealed by the very long, closely-hanging leaves. *W. B. H.*



VIEWS IN THE GARDEN OF ASHBOURNE, CO. CORK, THE RESIDENCE OF R. H. BEAMISH, ESQ.

ABOVE: THE ROCK GARDEN.

BELOW: *CHAMEROPS FORTUNII* AND *C. HUMILIS* SURROUNDED BY *CORDYLINE*
BANKSII VAR. *ERYTHORACHIS*.

THE KING TO OPEN THE ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.—Our readers will learn with satisfaction that His Majesty KING GEORGE V. has commanded the Directors of the Royal International Horticultural Exhibition, through Lieut.-Col. Sir GEORGE HOLFORD, K.C.V.O., C.I.E., his intention to open this exhibition on May 22, at 12 noon. There is already evidence that this show will attract horticultural novelties from all parts of the world, while it will present to visitors a unique display of present-day floriculture.

NATIONAL SWEET PEA SOCIETY.—We are pleased to state that this society will hold its annual meeting at the Hotel Windsor, Victoria Street, Westminster, on Friday, December 8, at 2 o'clock. Notice of new rules or alteration of rules should be communicated to the hon. sec., Mr. C. H. CURTIS, Adelaide Road, Brentford, on or before Friday, November 17. The annual meeting will be followed by a dinner at 6 o'clock, and this in turn will be followed by a Sweet Pea Conference, to commence at 7 o'clock, at which the following subjects will be dealt with:—Sweet Pea Diseases, by Mr. FRED. J. CHITTENDEN, F.L.S., Director of the Wisley Laboratory; Packing Sweet Peas for Market, by Mr. THOS. PAGE, of Hampton; and Packing Sweet Peas for Exhibition, by Mr. THOS. STEVENSON, of Adlestone.

A CONCESSION TO TREE GROWERS.—As the result of negotiations between the Royal English Arboricultural Society and the Estate Duty Office, the latter has agreed that the expense of replanting timber sold and felled will be allowed as a necessary outgoing to the maintenance of a timber estate.

NOVA SCOTIAN APPLES.—The shipments of Apples to this country from Nova Scotia during the present season is stated to have amounted to no fewer than 300,000 barrels.

DUTCH HORTICULTURAL SCHOOLS.—In the course of an article on the rapid increase in Ireland of winter schools for farmers, the *Standard* draws attention to the Dutch horticultural schools which are doing such admirable work for market gardeners. The schools are subsidised by the State, and give instruction not only in gardening practice, but also in languages and commercial subjects. One of the most successful of the Dutch horticultural schools is that at Naaldwijk, near The Hague, in the heart of one of the largest market-gardening districts of Holland. The special point of interest in connection with the garden attached to this school lies in the fact that the garden is a practical demonstration of the principles of horticulture.

COMMON WEEDS.—The following are the most of a series which is to deal with common weeds. The plants described in the present leaflet are the Corn Marigolds, Ducks and Sorrels, Goosefoot, Stinging Nettles, Yellow Kettle, Poppies, and Corn Cockle. The illustrations are excellent, and the brief descriptions accurate and striking. Young gardeners and others who wish to have means of identifying the weeds commonly met with should write to 4, Whitehall Place, for copies of the leaflet, which may be had from the Secretary, free of charge and post free.

MEDICAL RHUBARB.—Dr. C. C. HOSSENS, in a paper published in *Archiv für Pharmazie* (cxlix.), and reviewed in *Nature* (October 26, 1911), discusses the source of Chinese medical Rhubarb. The strongest evidence is put forward in a letter by Mr. E. H. WILSON that Rheum officinale furnishes the Rhubarb supplied from Tachien-lu, but that the best quality is derived from a variety of *R. palmatum*.

AUTUMN WEATHER.—According to the *Standard* of October 23, the weather in Warwickshire has been so mild that crops of Strawberries and Raspberries have been gathered recently in the gardens of St. Mary's Priory, Princethorpe, and in the Coventry district Sweet Peas have produced a second crop of blossom. The same newspaper reports that Raspberries grown in the open were exhibited at Newbury on October 26. But perhaps the most striking evidence of the openness of the weather is the growth which has been made by grass. Not only are lawns which were bare or brown now covered with their usual green, but newly-sown grass has germinated with extraordinary rapidity, and has well repaid the labour of those who were compelled by the devastating drought to resow the worst patches on their lawns.

"SLIME FLUX" OF ELMS.—A correspondent in *Nature* (October 19, 1911) draws attention to the condition of certain Elms at Etrington, near Stratford-on-Avon, which are said to have been "killed by wasps," the idea being that the wasps, attracted by the sweet sap, attacked the trees in such swarms as to drain them of sap. W. J. B., in commenting on the letter, points out that a similar phenomenon may be seen at Kew at the present time. In this case the trunk of a fine specimen of *Ulmus parvifolia* has served for some months past to attract hundreds of wasps and bluebottles. The insects, however, are not to be regarded as causing the outflow of sap; they merely feed on it. The exudation is caused by a wound parasite—probably a yeast—which gains access to the cambium and sets up fermentations, which result in the production of sugary substances. These substances exuding in the slime serve to attract the insects. This disease is not uncommon in Britain, and, unfortunately, is usually attended with results fatal to the tree.

APPLES AND PEARS FOR AWARDS.—The Chairman of the Fruit Committee of the Royal Horticultural Society wishes to call the attention of those sending Apples and Pears for awards to the fact that at least six fruits of each variety are required by the rules, and that all specimens should be in good usable condition, either for cooking or dessert, at the time of sending. Each variety should be accompanied by full particulars as to the position in which it is grown (wall culture or otherwise), and also the form of tree, and, if possible, its origin, with full notes as to cropping, keeping, and age of tree, otherwise the examples cannot be dealt with. For instance, it is useless to send Apples in October and November which will not be at their best till March.

CIDER APPLES.—It is common belief that Apples from young trees are inferior to those from old trees for the purpose of making cider. Scientific confirmation of this belief has been lacking hitherto, and, therefore, some recent experiments of Monsieur DUBELLE are of interest. He has made a comparative study of Apples from young trees, 10 to 15 years old, with those from old trees, 55 to 60 years old, grown in the same orchard, and finds that, though the fruit from the young trees is generally heavier, it actually contains less water than the Apples from old trees. The former are richer in sugar, but contain less tannin and acids. It is possible that cider made from the fruit of the old trees will have better keeping qualities, but the results do not justify, as yet, ascribing a greater commercial value to the Apples from the old trees. It is a fact of considerable interest that the analytical differences in the two cases are so marked.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

PRICES OF ADMISSION FOR R.H.S. FELLOWS.

As stated in our leading article last week, the directors of the International Exhibition have further considered the position of Fellows of the Royal Horticultural Society in regard to the prices of admission, and have decided to print the following official communication on the subject:—

The directors of the International Exhibition Association have agreed:—

(1) To give to all Fellows of the R.H.S. certain special privileges over the general public in regard to the purchase of tickets for the Exhibition; and

(2) To allow all such tickets purchased by Fellows of the Society to be transferable.

ADMISSION ARRANGEMENTS. GENERAL PUBLIC.

The directors of the International Exhibition Association have decided on the following prices of admission:—

	Before 5 p.m.		5 to 10 p.m.		All day	
	Admission	Children	Admission	Children	Admission	Children
May 22	2	1	1	0	2	1
May 23	1	0	10	0	2	1
May 24	1	0	5	0	2	1
May 25	1	0	2	0	2	1

FELLOWS OF THE R.H.S.

The special privileges accorded to Fellows of the R.H.S. are as follow:—

FELLOWS OF THE R.H.S. PAYING AN ANNUAL SUBSCRIPTION OF TWO GUINEAS.

May 22	May 23	May 24, 25, 27	May 28, 29, 30
Two tickets at half price at either hour.	Two tickets at half price at either hour.	Four tickets for any, but only one, of these days; with one additional ticket for the 55-day all-day price.	No reduction.

FELLOWS OF THE R.H.S. PAYING AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

May 22	May 23	May 24, 25, 27	May 28, 29, 30
One ticket at half price at either hour.	One ticket at half price at either hour.	Two tickets for any, but only one, of these days; with one additional ticket for the 55-day all-day price.	No reduction.

FELLOWS OF THE R.H.S. PAYING AN ANNUAL SUBSCRIPTION OF ONE GUINEA.

May 22	May 23	May 24, 25, 27	May 28, 29, 30
One ticket at half price at either hour.	One ticket at half price at either hour.	Two tickets for any, but only one, of these days; with one additional ticket for the 55-day all-day price.	No reduction.

Honorary and corresponding members enjoy the same privileges as two-guinea Fellows.

Associates: May 22, 23, 28, 29, 30, no reduction. One ticket on May 25 or 27 at half-price.

One-guinea affiliated societies: May 22, 23, 28, 29, 30, no reduction. Ten tickets on May 25 and 16 tickets on May 27, all at half-price. Two-guinea affiliated societies double privileges.

All privileged tickets on the above scale must be purchased on or before May 12, and can only be obtained direct from the office of the Royal Horticultural Society, Vincent Square, Westminster, S.W.

All the above tickets will be transferable, but will each be available for one admission only. Fellows can, therefore, circulate among their friends such of the tickets as they do not personally require. Cheque or postal order payable to the Royal Horticultural Society must accompany every application for tickets, and tickets, when once purchased, cannot be exchanged for others of a different date. R. Hooper Pearson, Hon. Secy.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

NOMENCLATURE OF "CAPE" PELARGONIUMS.

The Council of the Royal Horticultural Society has been asked to endeavour to obtain an agreement on the nomenclature of what are commonly known as Cape Pelargoniums. The only practical way known to the Council is to invite all growers of these plants to at once send cuttings (rooted or otherwise, with the name known to the sender attached) by post to the Superintendent, R.H.S. Gardens, Wisley, Ripley, Surrey. They will be potted up, and next year be compared with each other, and with herbarium specimens and printed records. No Zonals, or Show, or French Pelargoniums should be sent; only those known as "Cape." W. Wicks, Secretary R.H.S.

INTERNATIONAL EXHIBITION OF 1912: CHARGES FOR ADMISSION.—As pointed out in the Editorial article on this subject, p. 306, the first consideration for the Directors is to make income and expenditure at least balance, and they doubtless, as business men, have only weighed the question of charges in relation to the potential attendance. If they can attract a crowd of two-guinea visitors, the results will be more satisfactory than a crush of one-guinea visitors. It may be assumed, too, that the Directors have not overlooked the fact that the exhibition of 1866 was a great financial success, though the charges for admission were somewhat less than half those now proposed, for the four days the exhibition was open, namely, 2s., 10s., 2s. 6d., and 1s. W. Botting Hemy.

GARDENERS AND THE INSURANCE BILL.—Gardeners as a body have the lowest average death rate—with the exception of the clergy—in the United Kingdom. There are more than 5,000 country seats listed in the *Horticultural Directory*, and with an average of five gardeners in each place, this would mean 25,000 gardeners employed in private gardens alone. Besides these there are those engaged in public parks, botanic gardens, as well as landscape gardeners, nurserymen and florists, and market gardeners. To all such the United Horticultural Benefit and Provident Society unquestionably affords the best means of insurance under the Bill. The society is solvent, fully registered, and well managed. As paragraph I., sub-sec. II., clause 18 of the Bill has been omitted, any fear of exclusion on account of insufficient numbers has been removed. The society is approved, conforming to all the requirements and provisions of the Bill, yet if the pooling of one-half of the surplus profits, on the working of the Government scheme, could be avoided by enrolling sufficient new members the whole of the balance, which is sure to be considerable in such a healthy society, could then be utilised in any of the various ways the Bill permits for the benefit of its own members exclusively. The secretary is Mr. W. Collins, 9, Martindale Road, Balham, S.W., from whom information can be obtained. Mark Webster, Kelsey Park Gardens, Beckenham.

SEEDLING APPLES.—Mr. E. A. Bunyard (see p. 293) speaks of the variety "Charles Ross." I had the pleasure of seeing the mother tree in fruit for two seasons, the fruits of which were certainly larger than one of its parents (Cox's Orange Pippin), but very much smaller than the fruit from a young and vigorous tree. I think I am correct in stating that four "pips" were sown from a fruit on Cox's Orange Pippin which resulted from a cross with Peasgood's Nonesuch, and Mr. Ross obtained three first-class and distinct fruits, the three being "Charles Ross," "Rival," and "The Houbledon." The fourth was worthless, and was used as a stock. I believe that the Apple Charles Eyre, illustrated in your issue for October 14, was the one Mr. Ross said that he sowed on his 80th birthday. An amusing incident occurred while I was his neighbour at Welford Park. Mr. Ross's son, a schoolmaster, showed against him in the class for flavour, and excelled with his own Apple. This was accomplished from a small garden, and staged at the R.H.S. show by the veteran himself! E. Young, Bentley Priory Gardens, Stanmore, Middlesex.

EDUCATION FOR GARDENERS.—With reference to the letter of Mr. John Smith with regard to higher education for young gardeners (see p. 262), I think this scheme would be a very good one. There will be no doubt several difficulties to overcome, especially with regard to the interchange of work. I think that one year is quite long enough for a young journeyman to stay in a place if he is in search of knowledge, but the exact time is a matter of opinion. W. G. Newman, The Gardens, Fullbrooks, Worcester Park, Surrey.

INSTRUCTION IN FRENCH GARDENING.—In your reply to H. L. on French gardening (see p. 297), you only mention one school where women are taught the French gardening methods. May I point out that both Studley College and Swanley College have installed this "système maraîchère" under competent teachers, and the Burhill French Garden also trains women students in this branch of horticulture? I enclose a copy of our prospectus, giving a view of part of our French garden. M. Peers, Horticultural College, Studley Castle, Warwickshire.

BRITISH-RAISED SOYA BEAN.—I have pleasure in sending herewith specimen plant of Soya Bean (*Glycine hispida*), which I have raised this year in my garden from seed which I brought from the East in April last. Sown in the open ground on May 25, it was up in three days, began to branch at three weeks, flowered at ten weeks, and was gathered exactly at the end of the 16th week after sowing. The variety chosen was Sakura, a cream-coloured bean, rich both in oil and flour, which I also introduced into Ceylon last year. I put the plants to the severest tests possible. They were sown on poor, gravelly soil, under Cherry and Pear trees, and also against a wall having a N.E. aspect. Three plants selected for crossing with White Czar Runner Beans were placed in the open, but they behaved no better than the others, and certainly did not yield so heavily as those raised on poor, herbaceous border soil. The ground had been previously prepared by nitrogenous manuring—which is absolutely essential for successful raising of Soya Bean—but a further experimental treatment, when the plant began to flower, with nitrate, promptly killed every one to which it was applied. I find that the Bean stands drought and ground frost much better than the English Runner Bean, and am of opinion that it would be a certain success on sandy soils if sown in this country in early May. They would do well between Potatoes or as a main crop, and should be sown somewhat thickly. The yield is from 15 cwt. to 1 ton per acre. There are several varieties, the qualities of which are chiefly distinguished by their different colouring. Most of those of other than a rich cream colour are valuable as fodder food, but have no value as oil-producers. I may say that my endeavours have been directed towards acclimatising the latter, and, if possible, to transfer by crossing the oil contents of the Soya to our common English Runner Bean. My first cross looks very promising, but, of course, nothing definite can be said at present. Should these efforts succeed, it might be possible in a few years to give the farmer a legume which, whilst enriching an exhausted soil, will enable him to offer the seed-crushing trade an article which is in great and ever-increasing demand, and which at present has to be brought to the mills from the Far East. W. Wicherley, 22, Limes Grove, Lewisham, S.E. [The seeds in the pods appeared to be thoroughly ripe and perfectly sound.—Eds.]

DOUBLE FLOWERS IN STOCKS.—In the account which appeared in last week's issue of the *Gardeners' Chronicle* of papers read at the fourth International Conference on Genetics at Paris, some details are given of the results which I have obtained in Stocks with regard to the inheritance of double flowers. The writer concludes his summary by saying that, if the view which I have been led to form, namely, that old seed often gives a higher proportion of doubles than fresh seed, should prove to be correct, "it should not be impossible to rogue out the singles by artificial means, and so to secure seed giving doubles only." As I feel that this last remark may possibly give rise to some misconception, I should be glad if you would allow me space to state the facts more explicitly. The slightly greater vitality of the

seeds destined to give rise to doubles only becomes marked when the quality of the seeds is so bad, or the length of time during which they have been kept is so long, that only a very small percentage survive. Only when the bulk of the seed has died is one able to obtain plants which are exclusively, or almost exclusively, double. But, apart from the difficulty of hitting off the conditions which will ensure the right amount of mortality among the seeds, the smallness of the yield after this has been done (perhaps three or four plants out of every 100 seeds sown) renders this method of procedure for obtaining a culture of doubles out of the question. So far as I know, the only case in which it is possible to be sure of raising a large number of plants which will be all double is a certain strain of sulphur-whites. In this strain the seeds, when well ripened, can be sorted according to colour into two lots; the more yellowish ones will all give rise to cream doubles, those which are browner to whites, which will be nearly all single. In seed of good quality this sorting can be carried out with considerable accuracy. It will, of course, be necessary to sow some of the brown seeds in order to obtain seed-bearers, and the harvest of each generation, since the strain is ever-spouting, will need to be sorted afresh. E. R. Saunders, Cambridge.

SCOTLAND.

DUNDEE HORTICULTURAL ASSOCIATION.

This association has just issued its annual report and syllabus of meetings for the ensuing session. The report shows that the association has 84 members. The scheme of lectures is well arranged, and two prizes are to be given for the best plans submitted for the laying out of gardens and grounds. One prize is for gardeners under 30 and the other for those above that age.

ROYAL SCOTTISH ARBORICULTURAL SOCIETY TO VISIT BALMORAL.

The permission given by the King for the members of the Royal Scottish Arboricultural Society to visit Balmoral on the occasion of their annual excursion in June next is highly appreciated by the members, and it is likely that a large number will take part in the excursion. Forestry has been systematically carried on at Balmoral for many years. In connection with the foreign excursion the Society makes each year, the suggestion that financial assistance should be given to young, practical foresters to enable them to join such excursion is received with considerable favour by the many young foresters now taking a thorough training in Scotland.

HEATING OF THE WAVERLEY MARKET HOUSE, EDINBURGH.

It has been announced already in these columns that Messrs. Mackenzie and Moncreau have been entrusted with the heating of this building. We now learn that the system adopted is the Plenum. A Babcock and Wilcox tubular boiler, placed in a sunken chamber outside the market house, will be used to generate the steam for heating the air, and oil fuel, automatically fed, will be employed instead of coal, in order to prevent smoke. The heating chamber, to which the steam will be conveyed from the boiler by piping, will be placed just inside the market house. This will contain a series of 75 coils of 1½ inch iron piping, in flat grid-iron shaped sections, placed parallel to each other, and over this piping the air (which will be admitted through an opening in the roof at the end of the chamber) will be forced into the hall by means of a fan, driven by a 40 h.p. electric motor. The total length of piping in the coils will be 8,000 ft., and the fan will be capable of discharging 5,000,000 cubic feet of heated air into the building per hour. After passing over the hot pipes, the air will be conveyed into the hall at the level of the roof girders by means of a large duct, and from this smaller ducts will be carried along the roof of the building, so that the hot air will be distributed equally all over its area. The vitiated air will be expelled by means of the doors and other openings above the floor level. In hot weather the fan may be employed to force fresh air into the building, for ventilating purposes. The cost of the scheme will exceed £2,000. Correspondent.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

OCTOBER 24.—*Present*: Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Dr. A. B. Rendle, F.R.S., Messrs. H. J. Elwes, F.R.S., A. Worsley, W. Hales, J. T. Bennett-Poe, M.A., V.M.H., J. Douglas, V.M.H., R. A. Rolfe, A.L.S., J. O'Brien, V.M.H., G. Wilson, C. H. Hooper, W. Fawcett, B.Sc., J. O'Dell, W. C. Worsdell, G. Gordon, R. Hooper Pearson, and F. J. Chittenden (hon. sec.).

Vitis pulchra alba. Mr. WORSLEY showed a white-flowered form of what he regarded as *Nerine pulchra*, a seedling raised by him some time ago. He also showed ripe fruits of the variegated form of *Vitis heterophylla*.

Various plants.—Mr. H. J. ELWES drew attention to a flower of *Peonia lutea* from a plant (sent out by Messrs. Vilmoren) flowering for the second time this year, but now, unlike the first flowering, holding its flowers well above the foliage. Mr. BOWLES remarked that he had a form which normally flowered in this way, also from Messrs. Vilmoren. Mr. ELWES also showed a plant of *Statice fruticans* (= *arbores*), a Canary Island species, raised from seed, and flowering well within a year of seed-sowing; *Aristea corymbosa*, a woody Iridaceous plant from South Africa; and *Stapelia primulina*.

Primula sinensis stellata.—A remarkable instance of foliose development of the calyx in *Primula sinensis stellata* was shown by Mr. ODELL, in which the calyx segments were many times as long as the petals, and were of distinct leafy form.

Vegetable Murrain associated. A well marked example of this common malformation was sent by Mr. W. A. Voss, particularly remarkable on account of the flowers being produced in pairs along the stem, each pair consisting of either two staminate or two pistillate flowers, and the fruits also growing in pairs.

Malformation in Vitis sicyoides.—Mr. W. PATTERSON sent an interesting specimen of a malformed *Vitis sicyoides* from St. Vincent. The malformation is mentioned in Grisebach's *Flora of the British West India Islands*, where it is said to be common, but this is the first specimen met with by Mr. PATTERSON. It was growing "just where the conditions prevailing might be expected to exert influence to encourage an inflorescence to grow into such a form, namely, moisture and very little light." The specimen sent, which was over 15 inches in length and consisted of long, slender branches bearing numerous short, whorled branchlets, was "part of one axillary growth found growing on the ground under dense shade." Mr. PATTERSON drew attention to dark streaks of fungus spores on the ultimate branches, and suggested that the malformation might be of pathological origin. The fungus present is a member of the *Ustilaginaceae*, and no doubt the cause of the malformation. The form which it gives rise to has been described as a type of a new genus, *Spondylanthia aphylla*, by Presl. [see *Rel Haenk.*, ii., 35, t. 53 (1834)].

Cattleya sororia, Rehb. f.—Mr. R. A. ROLFE exhibited a flower which had been raised in the collection of W. Evans, Esq., of Leicester, from C. *Harrisoniana* crossed with the pollen of C. *bicolor*, and remarked that it was identical with the natural hybrid, C. *sororia*, Rehb. f., and thus confirmed the supposed parentage, which was originally in doubt. He also exhibited for comparison paintings from the *Dictionnaire des Orchidees* of the two parents, remarking incidentally that the one figured as C. *Harrisoniana* was wrongly labelled C. *Loddigesii*, and that, in fact, the names of the two species had been transposed, as was sometimes the case in gardens.

Laelia Cattleya amanda, Rehb. f. and L. C. Verelii, Rolfe.—Mr. ROLFE also exhibited flowers of these two natural hybrids, remarking that they were originally confused under the former name. The first, however, was from *Laelia Boothiana* and *Cattleya intermedia*, the latter from *L. Boothiana* and C. *Forbesii*, as was evident from the strong red veining on the disc of the lip. All three species were known to grow together in the neighbourhood of Rio de Janeiro. The two hybrids were in flower at Kew, that of L. c. *amanda* being from a batch raised by himself by crossing L. *Boothiana* and C. *intermedia*,

with a view to proving the parentage. Paintings of some of the plants in question were also shown.

Pollination in Orchards.—Mr. C. H. HOOPER gave an outline of his observations on pollination in orchards, which confirmed those of others that cross-pollination was necessary in the majority of cases in order that fruit should be produced. The results obtained have already been published in the *Gardeners' Chronicle* (see p. 254). Mr. WORSLEY pointed out that a certain temperature was necessary for the shedding of pollen in many instances, and if this were not attained, infertility might result. Mr. CHITTENDEN said that certain of the varieties Mr. HOOPER had found not to set fruit without the aid of foreign pollen, he had found would do so, and suggested that in order to settle the cases, in which only negative evidence was available, it was necessary to repeat the experiment several times, for there was great difficulty in eliminating many other factors which contributed to unfruitfulness.

Bitter-pit in Apples.—Among the numerous diseased plants sent for examination were several specimens of Apples attacked by "bitter-pit." This disease is particularly prevalent, even among hard-fleshed Apples, this season. It is characterised by numerous brown spots in the flesh at varying depths below the surface, and having, as a rule, no connection with surface injury in any way. No fungi or bacteria have been found connected with it, and it appears to be a disease of physiological origin rather than due to any parasite. The dead, brown cells contain starch, whereas in the rest of the flesh the starch has been converted into sugar. It would, therefore, appear that the death of the cells probably took place before the ripening process had proceeded so far as the conversion of starch into sugar, and may possibly be due to an accumulation of a poisonous substance in the cells through interference with the water supply.

KENT COUNTY CHRYSANTHEMUM.

OCTOBER 24.—The 24th annual show of this society was held at Blackheath on this date. The weather was wet during the whole of the time the show was open. There was a great falling off in the entries this year, owing, no doubt, to the early date of the show and the death of the president of the society, H. F. Tiarks, Esq., who was in the habit of exhibiting largely. The quality of the Japanese blooms was very good, but nothing exceptional in size; those of the incurved varieties were very rough and poor, although as a rule they are of excellent size and quality at this show. The fruit classes were fairly well contested, but vegetables were poorly represented. A magnificent group of miscellaneous plants was shown by Messrs. JAMES VITCH & SONS, Chelsea; all the plants used were perfectly grown, and included *Nepenthes*, *Orchids*, *Codiaeums*, *Alocasias*, *Cocos*, *Ericas*, and *Nerines*. A Gold Medal was awarded.

HERTFORD HORTICULTURAL.

OCTOBER 25, 26.—This society held its 20th annual exhibition in the Corn Exchange, Hertford, on these dates. The show was a great success. The groups of miscellaneous plants were oblong in shape and arranged in the centre of the hall, whilst near by were eight decorated dinner tables, which produced a charming effect. The side tabling was reserved for cut Chrysanthemums and fruit. The principal class was for 24 Japanese Chrysanthemums, and the 1st prize was won by P. BOSANQUET, Esq., Ponfield, Hertford (gr. Mr. J. Turk); 2nd, Mrs. BROWNING, Hertford (gr. Mr. Haynes), with highly-coloured specimens. There were five competitors in this class. Blooms of Henry Perkins, G. J. Bruzard, Mrs. R. Hooper Pearson, and George Lawrence were conspicuous in the exhibits. Good winter-flowering Begonias and Zonal Pelargoniums were shown. Fruit was grand, and keen competition existed in all the classes. The largest class was for 24 dishes of Apples, distinct, 16 of culinary and 8 dessert sorts. The 1st prize, which included a silver cup, was won by Mr. GERRISH, of Pendley Manor Gardens, Tring; 2nd, W. S. CAIN, Esq. (gr. Mr. F. Pateman); both were splendid exhibits, the fruit being of large size and well-coloured. Exhibits of Pears and Apples in the smaller classes were all good. A magnificent collection shown by Mr. PATEMAN was

awarded the 1st prize in the class for six dishes of dessert Pears. Mr. FULFORD, Warl Priory, was placed 2nd.

VEGETABLES are always shown well at Hertford and in large numbers. Messrs. Sutton & Sons, J. Carter & Co., and McMullen, Hertford, offered prizes for collections. In one of these sections only one point divided the 1st from the 2nd and the 2nd from the 3rd exhibit.

BRIGHTON AND SUSSEX CHRYSANTHEMUM.

OCTOBER 31, NOVEMBER 1.—The 29th annual exhibition of this society was held in the Dome and Corn Exchange on the above dates. The entries were fairly numerous, and the standard of excellence well maintained.

In the classes for plants (open) S. C. WITTING, Esq., Hollingbury Copse, Patcham (gr. Mr. Geo. Chandler), secured the premier award for a group of Chrysanthemums arranged with Ferns or other foliage in a circle 8 feet 6 inches in diameter. For a group of similar size, composed exclusively of Chrysanthemums, E. M. MARX, Esq. (gr. Mr. A. J. Jones), was awarded the 1st prize. In the class for 12 bush plants, Pompons only, PHILIP H. BAYER, Esq., Withdean, secured the handsome silver cup and the society's silver medal. Mr. G. LAMBERT (amateur), Chichester, was awarded the 2nd prize. For six bush plants (single-flowered varieties excluded), Mr. LAMBERT won the 1st prize, followed by S. COPESTAKE, Esq. (gr. Mr. Sayers), with PHILIP H. BAYER, Esq., 3rd.

In the cut-bloom section, the class for 36 Japanese blooms was won by Mrs. STEWART MACKENZIE, Lydhurst, Haywards Heath (gr. Mr. W. Evans), and the 1st prize comprised a handsome silver bowl and the society's silver medal. This collection contained grand blooms of Hon. Mrs. Lopes, Bessie Godfrey, Splendour, Eclipse, Mrs. C. H. Totty, Sir Frank Crisp, Mr. A. T. Miller, Mme. G. Rivol and Master David. Col. G. P. HENRY, Avisford, Arundel, was awarded the 2nd prize.

For 25 Japanese blooms, as cut from the plants, in not fewer than 18 varieties, the premier award and the society's silver medal were secured by Mr. C. Fox, Tunbridge Wells, who exhibited lovely blooms of Beatrice May, Lady E. Letchworth, Walter Jinks, G. Mileham '05, Evangeline and Reginald Vallis. The 2nd prize was awarded to Messrs. JAS. STREDWICK & SONS, St. Leonards-on-Sea; 3rd, Rev. F. SCLATER, Newark Park, Lewes (gr. Mr. J. H. Hickson). For 12 Japanese blooms, distinct, ARTHUR F. BLADES, Esq., Reigate, (gr. Mr. Frank Cordell), was successful, showing Miss A. Nicoll, Mrs. G. Mileham, Rose Ellis and Lady E. Letchworth; F. A. WHITE, Esq., Oakleigh, East Grinstead, was 2nd.

The best exhibit of six incurveds, one variety, was shown by Col. C. P. HENRY, the variety being *Enblème Poitevine*, whilst Capt. H. ACORN BLAKE was successful for six Japanese blooms, showing the variety Mrs. A. T. Miller.

In the class for 12 Japanese blooms, in not fewer than nine varieties (amateur division), Mr. C. Fox led easily with choice blooms of Beatrice May, Reginald Vallis, G. Mileham, Rose Pockett and President Viger.

For three bunches of White Grapes (open), E. E. D'AVIGOR GOLDSMID, Esq., was placed 1st (gr. Mr. Charles Earl), whilst for Black Grapes, in three bunches, Mrs. MASHTER, The Grange, Hurstpierpoint, won the 1st prize.

NON-COMPETITIVE EXHIBITS.

The honorary exhibits added largely to the success of the exhibition. We mention some of the more important.

MESSRS. BALCHIN & SONS exhibited ornamental flowering and foliage plants and Chrysanthemums (Gold Medal), C. G. A. NIX, Esq., Tilgate Forest, Crawley, showed a magnificent collection of fruit (Gold Medal); Messrs. TOOGOOD & SONS, Southampton, exhibited a table of fruit and vegetables (Gold Medal); Mr. FRANK WOOLLARD, Brighton, showed cut flowers of Chrysanthemums and Roses (Silver-gilt Medal); Mr. G. W. PIPER, Uckfield, had some good Rose blooms (Silver-gilt Medal); Messrs. ALLWOOD BROS., Haywards Heath, showed Perpetual-flowering Carnations (Silver Medal); and Messrs. WELLS & Co., Merstham, staged Chrysanthemums and Carnations (Silver Medal).

National Chrysanthemum Society.



NOVEMBER 1, 2, 3.

CHRYSANTHENUM shows a usually associated with dull weather, but, on the opening day of the National Chrysanthemum Society's great autumn exhibition at the Crystal Palace, Sydenham, the climatic conditions could scarcely have been more favourable for the sun shone brilliantly. Of recent years we have noticed a great improvement in these exhibitions and a return to some of the former magnificence seen at the old Westminster Aquarium. It is true that in some particulars, such as in the plant classes, nothing is now seen approaching those of the old times, nor are the specimen blooms larger or of better substance, but there are compensations in other directions. For instance, the type of bloom known as the decorative or market Chrysanthemum is now of great importance, and it gives a garden value to the Chrysanthemum which the larger exhibition blooms fail to provide. Then, again, the colours are greatly improved, whilst the season has been prolonged considerably by the introduction of early and correspondingly late-flowering varieties. It was pleasing to see in such an adverse season, which, as Sir Albert Rollit observed at the luncheon, has led us to confuse the dates—because early varieties are late and late varieties early—such a good show. Although the competitive classes were not so keenly contested as usual, this was compensated by the many excellent trade exhibits, some of them constituting a show in themselves and being arranged with consummate skill. It was a season for old varieties, and such favourites as Duchess of Sutherland, Mrs. A. T. Miller, Frances Jolliffe and Reginald Vallis were never shown finer. As already stated, there were very few plants exhibited, and although substantial prizes were offered in two classes, there was only one competitor who showed in the class open to amateurs for a floral display of Chrysanthemums arranged with suitable foliage in a space of 200 superficial feet. The exhibitor was J. C. ENS, Esq., Wood Hall, Dulwich (gr. Mr. R. B. Leech), and he was awarded the 1st prize.

OPEN CLASSES.

BLOOMS SHOWN ON BOARDS.

INCURVED VARIETIES.—The most important class in this section was for 36 blooms of distinct varieties. There were three exhibits, of good average quality, the 1st prize being awarded to PANTIA RALLI, Esq., Ashted Park, Epsom (gr. Mr. G. J. Hunt). The yellow and white varieties were the more prominent blooms in all three exhibits. Mr. RALLI showed Edwin Thorp (an especially fine bloom of this excellent white variety), Godfrey's Eclipse (yellow, also an excellent flower), W. Biddle, Lady Isabel, Emblème Poitevine (one of the largest blooms shown), Miss E. Holding (rosy-pink), Buttercup, Colonel Kekewich, Clara Wells. Mrs. F. Judson, Miss Nellie Southam (a splendid flower of this fine rosy-lilac variety), Duchess of Fife (a large well-formed bloom, white), Romance, H. W. Thorp, C. H. Curtis, Mrs. Robert Hall, Globe d'Or, Mrs. C. Brooks, Mrs. G. Denyer, and John Wainwright as his best specimens. One of the Holmes Memorial Challenge Cups, of which two were offered, and the Dean Memorial Medal were awarded to this exhibit.

The 2nd prize was awarded to A. TATE, Esq., Downside, Leatherhead, with blooms not much inferior to those of the 1st prize collection, the best examples being Clara Wells, Mrs. J. P. Bryce, Pantia Ralli, Edwin Thorp, H. W. Thorp, Godfrey's Eclipse, and Mrs. J. Wynne. 3rd, Miss LANGWORTHY, Gays House, Holyport (gr. Mr. T. J. Broom).

In the class for 12 varieties, distinct, there were two exhibits, shown by A. TATE, Esq., and Miss LANGWORTHY, who were awarded the 1st and 2nd prizes respectively. Mr. TATE had much superior flowers, Duchess of Fife, Emblème Poitevine, Clara Wells, and Mrs. J. Wynne, being a selection of the best blooms.

There was a class for six blooms of one variety; three exhibitors competed, and all staged lovely varieties. The 1st prize was awarded to Mr.

TATE for large blooms of Buttercup; 2nd, A. T. MILLER, Esq., Emlay House, Leatherhead (gr. Mr. G. Mileham), with the same variety; 3rd, Miss LANGWORTHY, with Clara Wells.

JAPANESE VARIETIES.—One of the Holmes Memorial cups was offered, with £7 in money, as the 1st prize in the class for 48 Japanese blooms, distinct. There were only two entries, but both collections were of excellent quality, and provided a choice display of the finest Japanese varieties in cultivation. The 1st prize was awarded to Mrs. W. CLARK, Frensham Place, Farnham (gr. Mr. C. Moore), who beat Mr. TATE by a few points only. Mrs. CLARK had large, fresh blooms of J. Lock (a large bloom, yellow flushed with red), Margaret Smith, Mrs. C. H. Totty, Master James, President Viger, Mrs. Chas. Beckett (rich yellow), White Queen, W. R. Holmes (a splendid flower), Master David, W. Jinks, J. W. Molyneux (a rich crimson shade), Mary Farnworth, Mrs. A. T. Miller, Duchess of Sutherland, Mme. Paola Radaelli, G. Mileham, Pockett's Crimson, Miss A. Nicholls (white), and Reginald Vallis. Mr. TATE showed a bloom of King George V. not yet in commerce. Other prominent varieties shown by this exhibitor were Mme. G. Rivoli, Miss Annie Nicoll, Mrs. R. C. Kelly, Hon. Mrs. Lopes, Mrs. A. T. Miller (one of the largest), Duchess of Sutherland, Walter Jinks, and Master James.

The President, Sir Albert Rollit, offered a cup for the best exhibit of 24 blooms, distinct, and this brought a good contest between six exhibitors. The cup was won by Capt. C. WIENER, Ewell Castle, Ewell (gr. Mr. H. Lloyd), whose magnificent blooms included such fine varieties as Reginald Vallis, Frances Jolliffe, Master David, Annie Nicholls, J. Lock (a grand flower), Mrs. F. C. Stoop, Melchior Beauty (a suffused of red on yellow), Mrs. A. T. Miller (a giant amongst white sorts), Mrs. Geo. Mileham (the rose-pink colour is very pleasing), Henry Poulton (deep chestnut-red), Bryant's Beauty, Rose Ellis (a pretty blush variety), and Edith Smith (cream). 2nd, Rev. COOPER-MARSDIN, Borslaredene, Bickley (gr. Mr. W. Rigby), with large flowers, but not so fresh as those in the premier stand. He showed Master James, Leslie Morrison, Frances Jolliffe, George J. Bruzard, Mrs. Chas. Penford, Mrs. Geo. Mileham, and J. Lock exceedingly well. 3rd, A. JAMES, Esq., Colton House, Rugby. 4th, A. TATE, Esq.

In the class for 12 blooms, distinct, a special 1st prize was offered by the Ichthemio Guano Company. The blooms were arranged on a table space 5 feet by 3 feet, and the use of other plants was allowed for effect. This proved a very pretty class, five excellent displays being forthcoming. The 1st prize was made in favour of the largest blooms, shown by Mr. TATE, who employed Codiceums (Crotons) and a rather dense ground of greenery. The blooms of Mrs. A. T. Miller, Kara Dow, Walter Jinks, Miss Annie Nicoll, Hon. Mrs. Lopes, and Countess of Granard were in the best exhibition style. 2nd, Mr. A. SMITH, The Convent Gardens, Roehampton, whose display was too formal, but the flowers were of good quality. 3rd, Rev. A. C. COOPER-MARSDIN.

BLOOMS SHOWN IN VASES.

The "Great Vase Class," which was for 12 vases, each containing three blooms of one variety, was disappointingly small, as the two exhibits that were staged created but a longing for more. The large, massive blooms, of splendid quality, shown in trios, with the natural foliage, were most imposing, especially those shown by A. JAMES, Esq., Colton House, Rugby (gr. Mr. A. Chandler). His crimson sorts were grand, especially George Hemmings and Master David. G. J. Bruzard and Master James were also shown well. The white Evangeline, yellow Algonquin Davis, Reginald Vallis, Mrs. H. Thornton, James Lock, and Frances Jolliffe were all good. 2nd, Mr. TATE, who had splendid flowers of Mrs. A. T. Miller, Duchess of Sutherland, Hon. Mrs. Lopes, Miss Annie Nicoll, Walter Jinks, and Beatrice May.

One vase of a white variety.—The variety Mrs. A. T. Miller was favoured by all the competitors, who numbered four. The 1st prize was

awarded to Mr. TATE, and the 2nd to Mr. H. J. HEDGE, Kirkdale Nurseries, Sydenham.

One vase of a yellow variety.—The better of two exhibits was a vase of Hon. Mrs. Lopes, shown by Mrs. W. CLARK, Frensham Place, Farnham (gr. Mr. C. Moore). The other vase was Bessie Godfrey, shown by Mr. HEDGES.

One vase of any other variety.—James Lock, yellow, with suffusion of crimson, shown by A. T. MILLER, Esq., was adjudged the better vase of two, the other being Mrs. George Mileham, shown by Mr. HEDGES.

INCURVED BLOOMS.—There were only two exhibits in the class for 12 vases of Incurved Chrysanthemums, these being staged on the same table as the great vase class. Mr. PANTIA RALLI won the 1st prize, his blooms being very choice specimens, and including Edwin Thorp, Buttercup, Mrs. F. Judson, C. H. Curtis, W. H. Thorp, Godfrey's Eclipse, Romance, Duchess of Fife, and Miss Nellie Southam. 2nd, Mr. A. TATE, who showed J. Wynne, Buttercup, Mrs. G. Denyer, Pantia Ralli, and others.

MARKET VARIETIES.—Medals were offered in a class for 12 bunches of disbudded inflorescences as grown for market, 12 blooms of one variety only in each vase. An outstanding exhibit staged by Messrs. CRAIG, HARRISON & CRAIG, Heston, was awarded the 1st prize. It was a magnificent display, the varieties being Bronze McNeill, Emblème Poitevine, Mary Thorp (pink), Money-maker (white), H. W. Thorp (white), Crimson King, Heston Bronze, E. Cox (white incurved), Phœbe (pink), D. Ingamells (yellow), Mrs. Roots (white), and Freda Bedford (bronzy-chestnut); 2nd, Mr. F. BRAZIER, Nurseryman, Caterham.

ANEMONE-FLOWERED VARIETIES.—There was only one exhibit in the class for 12 large-flowered Anemone varieties, the exhibitor being Miss LANGWORTHY, the 2nd prize being awarded.

This exhibitor was also the only grower who showed in the class for six vases of Pompon varieties, and the 1st prize was deservedly awarded, the blooms being of splendid quality, especially Katie Mannings, Mdle. E. Dordan and Sunset.

The best vase of Pompon or Anemone Pompons was arranged by Mr. L. LAWRENCE, Shoreham Cottage Gardens, near Sevenoaks.

Single Chrysanthemums.—A prize of three guineas was given by Messrs. Cragg, Harrison & Cragg for the best display of single flowers, in not fewer than three distinct varieties, arranged in eight vases, twelve blooms to a vase. Mr. F. G. BEALING, Nurseryman, Basset, Southampton, was the only exhibitor, and he was disqualified, as some of the vases contained fewer than 12 blooms.

A former President, C. E. Shea, Esq., offered prizes for a table of single Chrysanthemums arranged for effect, with appropriate foliage, and again Mr. BEALING was the only exhibitor, and he was awarded the 1st prize.

A very pretty ground exhibit was staged by Lady TATE, Park Hill, Streatham (gr. Mr. W. Howe), in a class for a display of single and Pompon varieties, and it was awarded the 1st prize.

AMATEURS' CLASSES.

There were four sections for amateurs, two each of Sections A and B, which was rather confusing. In the first Section A, for cut blooms, there was a class for 12 Japanese blooms, distinct, and five competed. All the collections were meritorious, the 1st prize being awarded to Rev. COOPER-MARSDIN (gr. Mr. W. Rigby). He showed G. J. Bruzard, Edith Smith, Reginald Vallis, Hon. Mrs. Lopes, Mary Farnworth, Mrs. A. M. Falkner, Mrs. Geo. Mileham, Mrs. W. Knox, President Viger, Bessie Godfrey, J. Lock, and Gladys Blackburn. 2nd, D. LINK, Esq., Beckenham (gr. Mr. W. Trowell).

In a similar class in Section B, the 1st prize was awarded to Mr. T. SHARPE, Railway Terrace, Stone, Greenhithe, with excellent blooms of Miss A. Nicoll, Mrs. G. Mileham, Bessie Godfrey, Master David (very rich in colour), Mme. G. Rivoli, Mrs. A. T. Miller, and Walter Jinks. 2nd, Mr. B. E. DAVIES, White Lodge, Biddenden.

There were also two classes for 12 incurved blooms, one in each respective division, but there was no entry in SECTION A. In the other case there were two exhibitors, the 1st prize being awarded to Mr. J. KING, East View, Hendon, and the 2nd to Mr. SHARPE. The premier blooms were of good size and form, the best being Buttercup, H. W. Thorpe, and W. Biddle.

Other prize-winners in the amateurs' classes were:—Messrs. J. YANSTONE, Tulse Hill; R. GLADWELL, South Norwood; C. H. MARTIN, Hendon; A. DYER, Norwood; J. LECOMBE, Norwood; B. E. DAVIES, Biddenden; and G. MOORMAN, Hampton Court.

DECORATIVE CLASSES.

There were no fewer than 29 decorated tables, there being two classes for these. In the class restricted to yellow and bronze varieties, the 1st prize was awarded to Mrs. A. ROBINSON, Park Hill, Carlhalton, with a pretty, but rather plain, arrangement, in which the varieties *Source d'Or* and *Lizzie Adcock* figured prominently. In the class for any colours other than bronze and yellow, the prize-winner was Mr. T. W. STEVENS, Donnington Gardens, Sydenham, medium-sized blooms of a chestnut-red variety being mingled with pink and white sorts, and relieved with autumn-coloured foliage in sprays.

The best vase of five blooms of a Japanese variety, in a class open to amateurs, was shown by Capt. C. D. CLARK, Shortlands (gr. Mr. W. Passey), the variety being the popular Mrs. A. T. Miller, very excellently shown.

The best vase of decorative varieties shown by an amateur was arranged by Mr. A. Dyer, gardener to E. H. Wood, Esq., Church Road, Upper Norwood.

The best basket of autumn berries and foliage was shown by Mrs. BREWSTER, 12, St. Peter's, Canterbury. The best basket of Chrysanthemums by Mrs. G. DAVIES, Upper Norwood, and the best vase of single Chrysanthemums by Mr. M. E. MILLS, Croydon.

AFFILIATED SOCIETIES CLASS.

Although only three of the numerous societies affiliated with the N.C.S. entered in the special class provided for them, the contestants proved worthy rivals, and each showed excellently. The 1st prize was won by the DULWICH SOCIETY, with a splendid exhibit, but it was regrettable that none of the varieties was named. The 2nd prize was won by the SEVENOAKS and WEST KENED SOCIETY, and the 3rd prize by the SYDENHAM and DISTRICT SOCIETY.

FRUIT CLASSES.

Grapes.—There were three classes for Grapes. For three bunches of white Grapes there were four entries, the 1st prize being won by W. C. BAYER, Esq., Tewkesbury Lodge, Forest Hill (gr. Mr. E. C. Wickens), who showed three excellent bunches of *Muscat of Alexandria*. 2nd, 1st, HILLINGDON, Sevenoaks (gr. Mr. J. Shelton), with the same variety.

The best bunches of Gros Colman were shown by Mr. E. C. WICKENS, Forest Hill.

The best three bunches of black Grapes, other than the variety Gros Colman, were shown by Lady TATE (gr. Mr. Howe), who exhibited *Black Alicante*; 2nd, Sir WALPOLE GREENWELL, Bart., Marden Park, Caterham (gr. Mr. W. Lintott), with the same variety.

Set dishes of various Apples, distinct.—There were five exhibits, the 1st prize being won by Rev. O. TURNER, Woburn Park, Weybridge (gr. Mr. A. Basile), with Cornish Aromatic, Cox's Orange Pippin, Rival, American Mother, King of the Pippins, and Chas. Ross. 2nd, Sir WALPOLE GREENING, Bart.

Set dishes of various Apples, distinct.—This proved a splendid class, some magnificent fruits being staged. The premier exhibit was staged by Rev. TURNER, who showed Bismarck, Emperor Alexander, Lady Henriker, Newton Wonder, Mère de Menage (magnificent fruits of this highly-coloured variety), and Bramley's Seedling.

Set dishes of various Apples, distinct.—The best of three exhibits in this class was shown by Rev. TURNER, who showed Birondeau, Beurré d'Or, Duchesse d'Angoulême, Beurré Bachelier, Rosevelt, and Charles Ernest, all the fruits being of splendid quality in every respect. 2nd, Sir WALPOLE GREENING, Bart.

AWARDS.

FIRST-CLASS CERTIFICATES.

Mrs. Percy E. Wiseman (*Incurved*).—A primrose-yellow variety shown by Mr. P. E. WISEMAN, Earl's Cottage, Woodham Water.

Heston Bronze.—A market variety, of light bronze colour.

Celia (*single*).—A yellow variety. Both these were shown by Messrs. CRAIG, HARRISON & CRAIG.

Mrs. John Peed (*single*).—A bright yellow flower. Shown by Messrs. J. PEED & SONS, Norwood.

Caterham Bronze (*single*).—A fine bronze variety, with a yellow zone bordering the greenish disc. Shown by Mr. F. BRAZIER, Caterham.

R. P. Burge (*single*).—A white variety. Shown by Mr. PHILIP LADDS, Swanley.

Mrs. Andrew Walker (*Japanese*).—The blooms of this variety are of moderate size, and the florets of a rich shade of chestnut-red. The variety is a sport from Freda Bedford.

Miss Margaret Walker (*single*).—A variety of golden-bronze shade; a very bold flower, measuring 6 inches across. Both these were shown by Messrs. W. WELLS & CO., LTD.

Charles Dickens (*single*).—A variety of rich yellow colour; a seedling from Mensa. Shown by Mr. NORMAN DAVIS, Framfield.

NON-COMPETITIVE EXHIBITS.

Mr. NORMAN DAVIS, Framfield, Sussex, set up one of the finest displays of Chrysanthemums ever seen at an exhibition. It had a commanding position, being immediately opposite the organ, and backed by hanging curtains of cardinal velvet. The front formed a semi-circle, and the ends receded, finishing in two half-circular groups. It was resplendent with stove foliage plants of gorgeous colours, and Palms, Bamboos, and Ferns were utilised in large numbers. Three bold esperges of Chrysanthemums dominated the background, and towards the front were shorter stands, filled with large exhibition blooms and dwarfier vases in the foreground. Varieties of special note were *Lady Talbot*, *Dagger*, *Gold*, *Beatrice May*, *White Queen*, *Mrs. G. C. Kelly*, *Miss Gladys Herbert* (new, mauve pink, a fine, deep flower), *Miss Beatrice Hoar* (deep crimson, new), and *Mrs. A. Herbert* (cream). Besides the single variety, *Charles Dickens*, which received a Certificate, there was a companion seedling from Mensa, named *Chas. Kingsley*, which the raiser considers the better of the two; the colour is a clear but-tercup yellow. This exhibit received the gold medal offered by Messrs. Clay & Son for the best miscellaneous exhibit, and also the Society's large Gold Medal.

Messrs. H. J. JONES, LTD., Ryecroft Nurseries, Lewisham, also made an imposing display with Chrysanthemums of all types, in which large Japanese blooms predominated. This display was relieved with autumn-tinted foliage, with greenery at the base. The principal features were tall upright esperges, rather too stiff to produce the best effect, and not nearly so pleasing as the large vases which this exhibitor employed in former years. But here also in the foreground were delightful, and here also the group was enhanced by some of the vases referred to. Notable varieties included Mrs. R. H. B. Marsham, Mary Farnworth, Mrs. A. T. Miller, Mrs. Percy E. Wiseman (incurved, new), Mrs. Trevor Williams (sulphur florets tinted with pink), Margaret Smith, and Miss Nellie Brockman. (Large Gold Medal.)

Messrs. W. WELLS & CO., Merstham, Surrey, were also the exhibitors of a group of Chrysanthemums of imposing appearance, the grouping being admirably executed. The front was undulating, the boldest flowers being arranged in esperges at the back against a tall, green background of drapery. Bright foliage served to make a veritable colour scheme, and prominence was given to two large specimens of *Phoenix Roebelini*. Very pretty also were two baskets of Chrysanthemums, one at either end of the group, one arranged with Cranford Yellow and red Oak leaves, the other with Wells' White and similar foliage. Amongst the choice blooms were Mrs. Gilbert Drabble, a magnificent white variety; Mrs. R. A. Witty, new, chestnut bronze; Mrs. G. C. Kelly, rose-red; Mrs. F. C. Sloop, White Queen, Mrs. R. Hookey, and David Ingamells. (Large Gold Medal.)

Mr. W. J. GODFREY, Nurseryman, Exmouth, filled a table with varieties of Chrysanthemums, single varieties being numerous. (Large Silver Medal.)

Messrs. CRAIG, HARRISON & CRAIG, Heston, Middlesex, had varieties suitable for market in exquisite blooms. The beautiful white single *Mensa*, J. B. Lowe (crimson), E. Pagram (rose-pink, single), F. King (pink), *Rouppel Beauty* (red), and *White Pagram* are a selection. (Large Silver Medal.)

Large Japanese blooms were staged by Mr. H. W. THORP, Durrington, Worthing, for which a Silver-gilt Medal was awarded. Walter Parsons is a new variety of reddish terra-cotta colour.

A Large Silver Medal was awarded to Mr. F. BRAZIER, Caterham, for a large display of single and decorative Chrysanthemums.

Messrs. H. CANNELL & SONS, Swanley, Kent, exhibited Chrysanthemums, Zonal-leaved Pelargoniums and a collection of Apples and Pears in 157 dishes. The Chrysanthemums included many pretty single varieties, such as A. Botham, Miss Tilly, Caledonia, Metta, Florrie King, and Florence Coles. Rayonnante, a pink Japanese variety, has exceptionally narrow florets. The fruit was of excellent quality and evoked the praise of the President, Sir Albert Rollet, in a speech at the luncheon. (Large Gold Medal.)

Messrs. JOHN PEED & SON, West Norwood, arranged a bold, circular group of Chrysanthemums in the main transept. It was greatly admired by visitors, and contained many choice specimen blooms of popular varieties. (Gold Medal.)

Messrs. BUTLER BROS., Bexley Heath, Kent, showed a group of delightful little plants of Chrysanthemums in 4½-inch pots, and not more than 12 to 18 inches high. The varieties were *Butler's Caprice* du Printemps, *Kathleen Thompson* (bronze), *Tapis d'Or*, Mrs. Roots (white), *Felton's Favorite* (white), *Dazzler* (red), *La Pactole* (bronze), *Yellow Caprice* du Printemps, *October Yellow*, *October Bronze*, Mrs. Greening (pink), and Mrs. Coates (single pink variety). Silver-gilt Medal.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, received a large Silver Medal for an exhibit of Apples and Pears. A similar award was made to Mr. W. A. VOSS, Fairlight Glen, Rayleigh, Essex, for baskets of Apples and Pears.

Messrs. D. RUSSELL & SONS, Essex Nurseries, Brentwood, staged ornamental shrubs and a collection of Apples. The shrubs were arranged in a very attractive manner, and made a showy group. (Gold Medal.)

Messrs. HOBBS, LTD., Dereham, Norfolk, showed Dahlias of the *Collarete* type, and varieties of Roses. (Small Gold Medal.)

Messrs. WILTON & GODARD, Durrington, near Worthing, made a pretty group with large Japanese Chrysanthemums. A new variety, named *Dorothy Wilton*, has old gold florets, passing to rosy-bronze. Other new varieties are *Zoe Wilton* (creamy-buff), and *Dorothy Godard* (showing a silvery reverse). (Large Silver Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, exhibited a large assortment of Ferns, also varieties of Begonias of the *Gloire de Lorraine* type. (Small Gold Medal.)

Mr. W. H. PAGE, Tangley Nurseries, Hampton, showed the fine scarlet Zonal Pelargonium *His Majesty*; also *Fiscal Reformer* (salmon-rose), and *Winter Cheer* (cerise). (Small Silver Medal.)

A Gold Medal was awarded to Mr. PHILIP LADDS, Swanley, for an exhibit of market Chrysanthemums, and a similar medal was awarded to Messrs. STUART LOW & CO., Enfield, for collections of Carnations and Apples.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

OCTOBER 12.—Committee present: Rev. J. Crombholme (in the Chair); and Messrs. R. Ashworth, J. Bamber, C. Parker, H. Thorp, Z. A. Ward, J. Cypher, J. C. Cowan, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, and H. Arthur, secretary.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum grande varium *Charlesworth's variety*, from R. L. DORR, Esq. A very distinct variety, with pure white lip.

Cypripedium Thogon, from W. R. LEE, Esq. (gr. Mr. Woodhouse).—One of the finest *Cypripediums* yet seen, a large, well-marked flower, of almost round form.

AWARDS OF MERIT.

Cattleya labiata alba "Mme. Le Doux," C. × *Empress Frederick*, var. *Marfieldense*, C. eximium, all three were shown by R. LE DOUX, Esq. *Cattleya suavis* (C. *intermedia alba* × C. *Prince Edward*), from W. J. HARGREAVES, Esq., Burnley. *Cattleya highburyensis* var. "Mary McCartney," from J. MCCARTNEY, Esq. *Cattleya Adula*, Ward's var., and *Cypripedium Zethus*, both shown by Z. A. WARD, Esq. *Dendrobium Phalaenopsis Schroderianum* var. "Miranda," from W. R. LEE, Esq., a beautiful, well-marked form, the colours running in lines. *Cypripedium Lord Oesulston* var. *cherubium*, from the Rev. J. CROMBIEHOLME, a brilliantly coloured variety, distinct from the original. *Laelo-Cattleya Lily* (C. *labiata* × L. C. *Dominiana*), *Oncidium Forbesii splendens*, *Cypripedium acutifolium* (C. *insipidum Sandera* × C. *Louriei Kimball*), all three from Messrs. J. A. KEELING & SONS. *Cattleya Ena Morton*'s var. (C. *bicolor* × C. *Masianina*), shown by the LIVERPOOL ORCHID CO. *Cattleya Thurgoodiana* "Wivelsfield" var., from Mr. ED. V. LOW.

HEREFORD FRUIT AND CHRYSANTHEMUM.

OCTOBER 25, 26.—As in previous seasons, the annual show of this society was held in the Shire Hall, Hereford, on the above dates. Apples, as is invariably the case, were staged in large numbers, and these fruits were of excellent quality. Collections of miscellaneous fruits, also exhibits of Pears, Grapes, and vegetables, together with agricultural roots and grain, were other leading features of the show. Many trade exhibits assisted considerably in making the show a success.

APPLES.—In the class for a collection of 50 dishes of distinct varieties, including culinary and dessert sorts, only two exhibits were staged. Messrs. PEWTERESS BROS., Tillington, won the 1st prize easily with choice fruits. The following were amongst their best varieties: Flander's Pippin, New Hawthornden, Tillington Court, Tyler's Kernel, Newton Wonder, King of the Pippins, Belle de Pontoise, Blue Pearmain, Byford Wonder, and Baxter's Pearmain. 2nd, P. H. FOLEY, Esq., Stoke Edith (gr. Mr. Roberts).

There were also two exhibits in the class for a collection of 30 dishes of distinct varieties. Mr. C. W. POWELL, of Warham Court Farm, placed 1st with good fruits of Bismarck, Lord Derby, Annie Elizabeth, Newton Wonder, Lady Henniker, Golden Noble, Gascoyne's Scarlet Seedling, King Edward VII., Beauty of Kent, and others. J. RILEY, Esq., Putley Court (gr. Mr. Taylor), was 2nd.

There were five entries in the class for a collection of 12 dishes of culinary varieties, and the 1st prize was won by the SELLECK FRUIT FARM CO., Ross (gr. Mr. O. Thomas), with splendid examples, including Bramley's Seedling, New Hawthornden, Newton Wonder, Gascoyne's Seedling, Bismarck, and Lane's Prince Albert. F. BODDINGTON, Esq., Burghill, was awarded the 2nd prize for almost equally good fruit; 3rd, Mrs. WOODHOUSE, Burghill.

The class for eight dishes of dessert Apples brought seven exhibitors, whose collections were collectively very imposing. Messrs. GETTING & NEWTON, Gleston Court, Ross (gr. Mr. Kelly), was placed 1st. This firm staged Rival, American Mother, Cox's Orange Pippin, and Wealthy in superb condition. The Rev. G. H. DAVENPORT, Foxley (gr. Mr. G. R. Currie), was 2nd.

There were three entries in the class for a collection of eight dishes of culinary and four of dessert Apples. Mr. BOTT, Brunton, secured the 1st prize, with choice fruits including the varieties Charles Ross, Cox's Orange Pippin, King of the Pippins, Blenheim Pippin, Wealthy, Lady Henniker, Peasgood's Nonesuch, Bramley's Seedling, Golden Noble, Lord Derby, Belle de Pontoise, and Annie Elizabeth; 2nd, Mr. G. R. CURRIE; 3rd, Mr. C. B. LEE WARNER.

The class for a collection of varieties recently introduced proved specially interesting. Mr. C. W. POWELL, who won the 1st prize, showed, amongst others, Rival, Charles Ross, Lord Hindlip, James

Grieve, Coronation, and King Edward VII. Mr. R. M. WHITING, Credenhill, followed closely, having fine fruits of Encore and Hector MacDonald.

Mr. C. W. POWELL was also 1st in the class for eight culinary varieties suitable for market purposes. Mr. C. THOMAS excelled in the class for 12 culinary and 6 dessert varieties suitable for market purposes, and Mr. KELLY was 1st for eight dishes of dessert market sorts.

There were 19 single-dish classes for Apples, in which were seen some of the best fruits in the show. In the class for Blenheim Pippin, 31 dishes were staged. There were several classes for cider Apples.

Champion classes.—The best dish of culinary Apples in the show was staged by Mr. BODDINGTON, the variety being Stirling Castle. Mr. C. THOMAS showed the best dessert variety in Cox's Orange Pippin.

PEARS.—Mr. G. R. CURRIE exhibited the best collection of 12 dishes, having Doyenné du Comice, Pitmaston Duchess, Beurré Diel, Beurré Bosc, Emile d'Heyst, Marie Louise, Easter Beurré, Durondeau, Glou Morceau, Thompson's, Conference, and Winter Nelis; 2nd, A. W. FOSTER, Esq., Brockhampton Court (gr. Mr. G. H. Parrott).

There were three creditable collections in the class for eight dishes, the best being shown by Sir JOHN COTTERELL (gr. Mr. C. Liddle), who staged good dishes of Beurré Diel, Nouvelle Fulvie, Doyenné du Comice, Durondeau, Beurré

to be exhibited in vases. The flowers made the halls very attractive, and were arranged through the centre of the fruit tables. The leading prize-winners in these classes were C. F. HALFORD, Esq., F. W. G. WILLIAMS, Esq., A. G. BURNLEY, Esq., Capt. CLIVE, and Dr. C. S. MORRISON.

F. W. GRESWOLDE WILLIAMS, Esq. (gr. Mr. H. Tribe), showed the best group of miscellaneous plants; Mr. C. LIDDLE was a close 2nd.

Five exhibitors arranged dinner-table decorations with Chrysanthemum blooms. Miss BOLT, Brenton, was placed 1st.

VEGETABLES.—The chief prize-winners in the vegetable classes were Mr. A. G. BURNLEY, Capt. P. A. CLIVE, Mr. W. H. DAVIES, Mr. T. YOUNG, Mr. W. STANSBURY, Archdeacon WINNINGTON INGRAM, and Lady FLORENCE KING-KING.

NON-COMPETITIVE EXHIBITS.—THE KING'S ACRE NURSERY CO. staged a splendid collection of Apples and Pears, consisting of upwards of 130 baskets and dishes, as well as a large stand of floral devices and Chrysanthemums. Mr. WILSON, Commercial Street, Hereford, arranged a large and imposing stand of cut flowers, bouquets, and wreaths. Messrs. YOUNG & CO., Chatterley, Cheltenham, made a fine display with varieties of Carnations.

Obituary.

G. H. GOLDSMITH.—We regret to announce the death, on the 21st ult., of Mr. George Henry Goldsmith, of 6, Springwell Road, Tonbridge. Mr. Goldsmith, who was 69 years of age, had been in indifferent health for the past five or six years, and was taken worse nine weeks ago at the residence of his daughter, Mrs. E. A. P. DEE, Southborough, Tunbridge Wells. Mr. Goldsmith commenced his gardening career at "High Trees," Redhill, and in course of time became head gardener at Hollenden Park, Hildenborough, near Tonbridge, where he remained for 17 years. After terminating his engagement at Hildenborough, deceased was appointed gardener to Sir E. G. Loder, Bart., at Leonardslee, Horsa-ham, Sussex. During his 15 years service at Leonardslee he removed many valuable plants from Flore, Northampton, to Leonardslee. Mr. Goldsmith relinquished gardening some 14 years ago, and engaged in the greengrocery business at Tonbridge. In his earlier days he was a keen cricketer, both as a player and umpire. He leaves a widow, three sons, and three daughters. The funeral took place on Wednesday, the 25th ult., at Tonbridge cemetery.

M. LOUIS GRANDEAU.—Agricultural science has suffered a severe loss in the death of M. Louis Grandeau, the distinguished French chemist. M. Grandeau, who was 78 years of age, held numerous important posts, and was not only a student of agricultural chemistry, but also a journalist of high repute. In this latter capacity no less than in that of professor, he rendered signal service to the cause of French agriculture.

TRADE NOTICES.

ROBERT GREEN (1911), LTD.

This company has been registered with a capital of £3,000, in £1 shares. Business: That carried on at 28, Crawford Street, London, as Crawford Street Flower Depot, Ltd., florists, nurserymen, &c. Private company. Office: 8, Old Jewry, E.C.

WM. WOOD & SON (MAREFIELD), LTD.

The above named company has been registered with a capital of £5,500, in £1 shares. Business: That of horticulturists, florists and seedsmen, carried on at the Woodlands Nursery, Marefield, Sussex, as Wm. Wood & Son. Agreement with F. S. Champion, A. Turner, Mrs. D. M. Wood, R. N. Wood, Miss N. M. Wood, Mrs. B. Wood, Mrs. E. M. Salomon, C. F. Wood, and Miss W. B. Wood. Private company. Office: Woodlands Nursery, Marefield, Sussex.

BARRON, JOHNSON & CO., LTD.

This company has been registered with a capital of £1,500 in £1 shares. Business: That of wholesale and retail fruit growers and merchants, &c., carried on by S. Barron and J. N. Johnson, at Jackson Street, at High Street, and Belvoir Road, and at Forest Road, Coalville, Leicestershire, as Barron, Johnson & Co. Private company.

SCHEDULE RECEIVED.

Ancient Society of York Florists.—The annual Chrysanthemum show of this society will be held at York, on Wednesday, Thursday, and Friday, November 15, 16, 17. Secretary, Mr. H. Dale, 9, St. Leonard's, York.



THE LATE GEORGE HENRY GOLDSMITH.

Bosc, Easter Beurré, Conference, and Pitmaston Duchess; 2nd, General CLIVE, Peryston Court (gr. Mr. W. D. Thomeley).

In the single-dish classes, Mrs. WOODHOUSE was 1st for Marie Louise, Sir JOHN COTTERELL 1st for Doyenné du Comice, Mrs. BLASHILL 1st for Pitmaston Duchess, and the Rev. G. H. DAVENPORT 1st for any other variety.

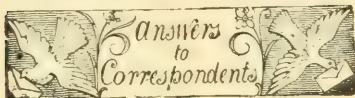
Mr. LIDDLE secured the prize offered for the champion dish, with splendid fruits of Doyenné du Comice.

Messrs. PEWTERESS BROS. were the only exhibitors in the class for a decorative group of fruits in a space of 50 square feet, and deservedly received the 1st prize.

There were three exhibits in the class for a collection of six dishes of fruits. Mr. C. LIDDLE led with Muscat of Alexandria and Lady Downe's Grapes, Emerald Gem Melon, Coe's Golden Drop Plums, Doyenné du Comice Pears, and Cox's Orange Pippin Apples. COL. HENRY, of Haffield (gr. Mr. J. Sykes), was placed 2nd with almost equally fine fruits.

GRAPES.—Capt. P. A. CLIVE, Whitfield (gr. Mr. Stevens), who was the only exhibitor in the class for Gros Colman, was awarded the 1st prize. For any other black Grape, Mr. DUNN was 1st amongst three exhibitors, staging Black Alicante in capital condition. Mr. SYKES followed with Gros Maroc. For three bunches of white Grapes, there were five good exhibits; Mr. ROBERTS led with Muscat of Alexandria, being closely followed by Mr. G. R. CURRIE, who staged the same variety; 3rd, Mrs. WOODHOUSE.

CHRYSANTHEMUMS.—There were six classes for Chrysanthemums, and the blooms were required



The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

BIENNIALS. **LAUREL.** **RHOODENDRON.** **AND ORANGE.** *J. P. O. D.* 1. The present is a good time to plant Wallflowers, Double Daisies, Myosotis, and Canterbury Bells. 2. Assuming that your Laurels have made satisfactory growth after being cut hard back, they should be transplanted as soon as possible. 3. You do not state the kind of Rhododendron (Azalea) you refer to, or how long they have been planted. We suspect them to be Rhododendron sinense, generally known as Azalea mollis, and that the plants were exposed to the drying influence of the air before they were planted. In these circumstances the plants would flower fairly well, but would not possess sufficient strength to make satisfactory growth. From your description of the soil it should be suitable for these plants. 4. The fact of your Orange tree, which has healthy leaves, dropping its fruits soon after they are set, points to cultural errors; probably the atmosphere of the house is too dry, or the plants are grown in too much heat.

BULBS IN MOSS FIBRE. *F. H. van V.* *Trompsburg.* As plenty of cocoanut fibre is obtainable, you can make a suitable mixture for growing bulbs in bowls by adding to it a mixture of fine and moderately coarse charcoal. Bulbs will grow successfully in this medium. When the bulbs are showing their buds a little weak liquid manure may be given, or artificial manures may be lightly sprinkled on the surface of the fibre. We do not, however, advise any manure being used in the earlier stages of the bulbs' growth, and even in the later stages it is not absolutely necessary. Good bulbs will flower quite well in the fibre and charcoal mixture without any other addition. The proportion of charcoal to fibre should be at the rate of four quarts of charcoal to one bushel of fibre. You will do no harm by mixing crushed shell or even old mortar rubble, which can generally be obtained from local builders or house-breakers, using it at the rate of 4 quarts to the bushel. The mixture should be made quite damp, but not so wet as to be at all sticky, or, indeed, to allow of any water being squeezed out. The bulbs do not require a great deal of moisture for the first few weeks after planting, only just sufficient to encourage the roots to start into growth. After the first few weeks, however, more water should be given gradually, although at no time should the mixture be allowed to become soppy. After planting, either of the following plans may be adopted:—(a) The bowl-shaped vessels may be plunged out-of-doors on a bed of cocoanut fibre or ashes, and covered entirely with cocoanut fibre, leaving them thus until the bulbs have made good fibrous roots (Romeo Hyacinths four or five weeks, large-flowered Hyacinths, Tulips, Daffodils, &c., eight to 12 weeks). (b) Or the bowls may be plunged in a cold frame, airy cellar, or out-house instead of out-of-doors; with this treatment, however, it will be necessary to occasionally water the bulbs. (c) A third plan is to place the bowls after potting in a dark or moderately dark, airy place, which is cool but not too cold; they should not be placed in a glass cupboard; treated thus they will also require a little water occasionally. In the case of bowls plunged out-of-doors there will be no need to give any attention in the way of watering, as they will receive an abundance of moisture from the autumn rains. Where, however, the bulbs are not exposed to the rain, the bowls should be examined once or twice each week, care being taken that the fibre mixture is kept uniformly moist, but for the first week or two after planting only sufficient water should be given to keep the fibre damp enough to encourage root action. As soon as the bulbs are well rooted, however, water should be given more freely,

the fibre mixture being then kept quite moist. Great care must be taken that the mixture is never allowed at any time to become dry, even for a day. If obtainable, rain water should always be used. When the bulbs have made some top growth the bowls should be placed in a sunny window where they will get the morning sun, or put into a cool greenhouse close to the glass, if being necessary that they should be given sufficient light and air to prevent the foliage becoming drawn. No bottom heat should be given, a temperature of 55° to 60° by day, and 50° to 55° by night is sufficient to obtain good blooms; the bulbs resent too warm a temperature. The spent Hops you mention may be employed as manure for other crops.

CHRYSAETHUMS DISEASED. *A. Q. and F. S. de Nons.* The Chrysaethums are attacked by *Cylindrosporium Chrysanthemi*. Spray the plants with permanganate of potash of a pale rose colour.

CUCUMBER LEAVES. *Anxious.* The symptoms suggest elworm at the roots, which causes knots or warts on the fibres. No cure is known. Do not plant Cucumbers, Tomatoes, or Melons in the same house until it has been thoroughly cleaned, removing every particle of the old soil. If it is suspected that elworm is present in the new soil sterilise it by baking.

DRACENA. *W. H. P.* There is no disease present on the leaves of *D. Sanderae*. The condition complained of is brought about by a too moist and insufficiently ventilated atmosphere with deficient warmth.

FRUIT PLANTING. *Fruits.* 1. As you propose to plant Apples, Pears, Plums and Cherries on three or four acres, you will not need a great number of varieties of each kind. They cannot all be "the very best," and the most desirable varieties to grow in one district may not be the best in another place. It is important to ascertain which varieties flourish in your district. Apples that grow well in most soils are (culinary) Early Victoria, Lord Grosvenor, Queen, Ecklinville Seedling, Lane's Prince Albert, Bramley's Seedling, and Newton Wonder, and (dessert) Victoria, Cookington, Beauty of Bath, Worcester Pearmain, James Grieve, and Cox's Orange Pippin. If you intend to grow fruit for market it is best not to have too many varieties. Those named are given for a succession. 2. As you intend to make your soil by taking out gravel and putting in better material, you might grow the culinary sorts as half-standards on the crab stock, and the dessert varieties as bush-shaped trees (not pyramids) on the English paradise stock. Tall standards would outshadow the dwarf trees too much. 3. All the cooking varieties named do well as standards or half-standards, and all the dessert varieties as either dwarf or half-standards. 4. Two-year-old bush or half-standard trees are to be preferred to older ones. They would not be "fruiting trees"; but it is a great mistake to let trees fruit until the third season after planting, and even then they should not be allowed to bear except on the lower parts of the branches. If you order trees trained in bush-shape, they will probably be three years old. 5. November is the best month for planting, if the soil is in a good condition. If you cannot plant before Christmas, any time up to the end of March will do. 6. As you have no great depth of natural top soil, 12 feet would be a sufficient distance between the trees each way. Or you might place the half-standards 15 feet apart in the rows, and the bush trees at a distance of 10 feet, allowing 15 feet between the rows. Then you could plant Gooseberries or Currants between the trees in the rows 5 feet from each other or from a tree, and they may be allowed to remain till the trees overshadow them. There would then be two small fruit bushes between each two half-standard trees and one between each pair of bush-shaped trees, while between the two rows there would be two rows of Gooseberries or Currants. The bushes would come into profit long before the trees. 7. The best and cheapest plan of protecting trees from rabbits or hares is to place a circle of 1 inch mesh wire netting around each stem. Experience has proved that netting 18 inches wide is sufficient, and this may be cut into 18 inch lengths, the cut ends being

twisted into each other in three places from top to bottom. But this question of rabbits indicates that you will do well to have all your trees on stems, because you cannot adopt the plan of netting them just recommended if you have bush-tree branches close to the ground. The stems of the dwarf trees need not be more than 3 feet high. If shorter, the lower branches may in time hang down low enough for the rabbits to reach them. If you have such trees, it will be necessary to have tall netting, tied to stakes all round the orchard, which will cost much more than the circle round the stems. So far, the remarks apply to Apples only. The following variety of Pears may be planted for a succession: Clapp's Favourite, Louise Bonne of Jersey, Beurré Superfin, Doyenné du Comice, Thompson's, Winter Nelis, and Josephine de Malines. A good succession of cooking Plums will be found in Rivers's Early Prolific, Czar, Belle de Louvain, Victoria, Pond's Seedling, and Monarch. Among the best of dessert Plums are Greengage, Denniston's Superb Gage, and Coe's Golden Drop.

GRAPES. *A. E.* There was no evidence of shanking in the berries sent us, but many of them had failed to ripen. This is probably due to the vines having been planted in borders which were not prepared properly at the commencement. If the drainage is imperfect, then the border would be colder during the whole season than would be the case if it were made according to the usual practice.

NAMES OF FRUITS. *Waller.* 1, Margil; 2, Scarlet Golden Pippin; 3, 5, 6, and 7, Collins; 3, 8 and 9, Old Nonpareil; 10, Catshead.—*O. A. C.* 1, Dumelow's Seedling; 2, Warner's King; 3, Fearn's Pippin; 4, Kerry Pippin; 5, G. O. S. Orange Pippin; 6, Blenheim Pippin.—*G. O. S.* Cornish Gilliflower.—*G. A. S.* 1. Very carefully packed. Many of the numbers were detached. We only undertake to name six at one time. 1, Winter Hawthornden; 2, New Hawthornden; 3, Blenheim Pippin; 4, Ashmead's Kernel; 5, Ribston Pippin; 6, King of the Pippins. The remaining fruits will be named in the next issue.—*Edward Tate.* 1, Hanwell Sourcing; 2, Golden Noble; 3, Grange's Pearmain.—*Upton.* 1, Spice Apple; 2, Cockie Pippin; 3, Beauty of Kent; 4, Old Nonesuch; 5, Scarlet Nonpareil.—*J. D. S.* 1, Court of Wick; 2, Nancy Jackson; 3, Minchull Crab; 4, Mère de Ménage; 5, Lord Derby; 6, Tom Pitt.—*T. Murray.* Grapes smashed.—*P. Earl.* 1, Brabant Bellefleur; 2, Bramley's Seedling; 3, Annie Elizabeth.—*H. A. B.* Hornmead Pearmain.—*A. Roe.* Hawthornden.—*W. H. C.* British Queen.—*C. W. T.* 1, Welford Park Nonesuch; 2, King of the Pippins; 3, English Codlin. The Grapes should have been packed separately.—*West End.* 1, Newton Wonder; 2, Hubbard's Pearmain; 3, King of the Pippins; 4, 5, Dumelow's Seedling; 6, Colonel Vaughan.—*R. M.* 1, Beurré Capiaumont; 2, Autumn Bergamot; 3, not recognised.—*E. T.* 1, Tower of Glamis; 2, Alfriston; 3, New Hawthornden; 4, Yorkshire Beauty, syn. Red Hawthornden; 5, Dean's Codlin; 6, Prince Albert.—*Wool.* 1, Welford Park Nonesuch; 2, Belle de Boskoop; 3, Annie Elizabeth; 4, Alfriston; 5, Baumann's Reinette; 6, Durondeau; 7, Blenheim Pippin.—*A. J. Wilson.* 1, Cox's Pomona; 2, Gooseberry Apple; 3, Warner's King; 4, Beauty of Kent; 5, Mannington's Pearmain; 6, so very small, we do not recognise it.—*A. Gatchell.* 1, a very good flavour, we do not recognise the fruit; 2, Scarlet Nonpareil; 3, Minchull Crab; 4, Sam Young; 5, Reinette Van Mons.—*Ernesti.* 1, Gooseberry Pippin; 2, Brabant Bellefleur; 3, Beurré Clairgeau.

NAMES OF PLANTS. *A. J., Forest Gate.* Quercus Ilex (Evergreen Oak).—*F. Street.* 1, Vitis heterophylla; 2, Rosa carolina; 3, Juniperus rigida.—*R. M.* 4, Ruscus racemosus.—*G. A. S.* Chlorophytum elatum variegatum, long, narrow leaf; Maranta Makoyana, with coloured foliage; Begonia manicata; Calceolaria antiquorum, largest leaf. The specimens were without numbers or other means of identification.—*H. G. K.* 1, Eupatorium Weinmannianum; 2, Nerine undulata.—*W. H. C.* Bryophyllum calycinum, the ovate leaf; and Schinus molle (Pepper tree).—*R. T.* 1, Gymnogramme tartarea; 2, Pteris hastata; 3, Lastrea decurrens; 4, Lomaria alpina; 5, Polypodium

This little old garden, which belonged to the late Miss Ewart, near Dorking, is well known to every garden-lover. The gardener there is a very clever man, and takes a great interest in the plants, of which he is quite as fond as Miss Ewart was herself. He has made his small territory almost a miniature "Botanic Garden." The form is very original, having been fashioned after the taste of its rather eccentric owner; but this makes it all the more interesting.

Not far from Dorking lies the residence of Sir Frederick Mirrieles, to which I have already referred in connection with *Erica australis*. The estate lies in the best possible position for the creation of a garden, covering a large area facing south-west, in the heart of the rich Surrey hills. I arrived there one evening, accompanied by Sir Frederick; and I was particularly struck by the exquisite view from the terrace of the house. The sun was setting, and the last warm rays were falling on the varied landscape, deepening and intensifying all the colours, and blending them subtly and harmoniously. Birds preparing for the night sang their last song of praise and joy; myriads of flowers gave forth an intoxicating scent; the very curious dwelling, beautified by climbing plants, and guarded by tall Scotch Firs, the red light streaming down upon their stately stems, and through the dark green of their foliage, all gave an impression of peace and beauty which will long remain with me.

There is here a fine and artistic rock-garden, built by Mr. Potter. It is extremely natural, and in the best possible taste. The stones of which it is composed are local, and were brought from the woods close by, thus perfectly preserving the harmony of the landscape. I was fortunate in finding there the most beautiful specimen of *Lithospermum prostratum* I have ever seen, covering a space of over 10 square feet. The ground is somewhat poor, peaty and chiefly; very suitable for Alpine plants, if for no others. There were some good patches of true *Saxifraga lingulata*, *Morisia hypogæa*, *Linnaea borealis*, and species of *Androsace*. The plants are arranged in much the same way as at Friar Park, and this rock-garden bids fair to become one of the finest in England.

When I first heard of the "Six Hills Nursery" of Mr. Clarence Elliott, I imagined it lying at the base of half-a-dozen high mountains. Readers will therefore judge of my surprise and amusement when I saw the six little molehills which give the nursery its name—tiny hummocks, of unknown use, but said by antiquarians to be of Danish origin. However, this slight disappointment did not in any way affect my pleasure in visiting the man who had the intrepidity to go all the way to the Antipodes to fetch *Oxalis enneaphylla*. (By the way, I hope he did not destroy the species, but left sufficient of the plant to survive his visit.) My reason for going to Stevenage was to learn the culture of this plant, which has not hitherto done very well with me; and I found that Mr. Elliott is in the habit of treating it under very varied conditions. Sometimes he treats it as a wall plant, and grows it between two rocks; sometimes he raises it in a frame; and sometimes he calls it a perennial, and plants it in the kitchen garden! As it seems to grow equally well in all these widely-different positions, I am afraid I am not much the wiser. I was particularly interested in the means adopted there of increasing the rarest Alpine plants and by the good results which Mr. Elliott obtains with the more delicate of them. *Henry Corréon, Floraine, near Geneva.*

(To be concluded.)



FIG. 142.—*Senecio heritieri* in VESSER'S, SUTTON AND SONS' COLLECTION.

NEW OR NOTEWORTHY PLANTS.

SENECIO HERITIERI.

In the first volume of the *Botanical Magazine*, published in 1793, there is a figure of *Cineraria lanata* "lately introduced from Africa." It is really *Senecio Heritieri*, of De Candolle, a native of Teneriffe, where it grows at an elevation of 6,000 feet. So far as I know, this plant had long been lost to cultivation until quite recently, when Messrs. Sutton & Sons re-introduced it from Teneriffe and exhibited it at the Temple Show in 1910. Figure 142 was prepared from a specimen supplied by Messrs. Sutton. It will be seen that this plant is quite distinct from what is now generally grown as *S. Heritieri*, which is probably a hybrid, and is characterized by a tall, shrubby habit, zigzag stems, and large, loose panicles of flower-heads, generally terminal, whereas the true *S. Heritieri* rarely exceeds a foot in height, has straight stems, and solitary flower-heads, as shown in the figure. There are other differences, such as in the lobing of the leaves and the form and arrangement of the ray florets. Messrs. Sutton have crossed this plant with garden *Cinerarias*, the result being a race of dwarf, elegant habit with large flowers of various colours. For these I suggest the name of Alpine *Cinerarias*, to distinguish them from the large-flowered and stellata races. To my taste, the pure, unadulterated *S. Heritieri* is particularly pleasing, and it is to be hoped that it will not be allowed to slip out of cultivation again. There is the possibility of its proving hardy in this country, an elevation of 6,000 feet on the Teneriffe mountain being in the snow region.

The spurious *S. Heritieri* now requires to be re-named. I am inclined to believe that it is a hybrid between *S. populifolius* and *S. Heritieri*, but how it originated is "wrapped in mystery." We know that the true *S. Heritieri* was cultivated in the *Jardin des Plantes* in 1815. We also know that in the early half of last century gardeners crossed various species of what were then known as *Cinerarias*. My first acquaintance with this hybrid was in 1889, when Mr. Moore, of Glasnevin sent it to Kew as *Cineraria aurita*, and it has been grown here ever since as a winter flowering plant for the conservatory, its good nature under ordinary treatment and its decorative qualities being unsurpassed by those of any other garden *Cineraria*. There are two good hybrids from it, one raised at Glasnevin and named *S. Moorei*, the other at Kew and named *Lady Thistledown-Dyer*. Seeing that this plant is most probably a garden race, an appropriate name for it is *S. hortensis*.

To summarise matters, we have (1) *Senecio Heritieri*, from Teneriffe, represented in i.g. 142; (2) *S. hortensis*, hitherto known as *Cineraria aurita* or *S. Heritieri*, a tall perennial with zigzag stems and large paniculate heads of flowers. W. W.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM PURPUREUM —TRACY'S VARIETY

THIS remarkable variety which is now flowering in Mr. Tracy's nursery, Twickenham, gives an example of the distinct characters which are occasionally to be found in species, the bulk of which are true to the common type. *C. purpureum* is always distinct and pretty, but no material variation in it was recorded until the variety referred to was shown by the late Mr. H. A. Tracy at the meeting of the Royal Horticultural Society on September 26, 1905, when it was given an Award of Merit by the Orchid Committee. The foliage, as well as the flowers, are very distinct, the leaves being for the greater part silvery-white with a veining and blotching

of deep green. The flowers are larger than those of the type, the fine white dorsal sepal being tinged with rose at the base, and marked with purple lines; the petals are broad and flat tinged with rose, and the lip coloured rose-purple. A good selection of hybrid *Cypripediums* are also in bloom in this nursery, including some handsome forms of *C. Euryades*, *C. Leeatum*, and other hybrids of *C. insignis*.

EPIDENDRUM VITELLINUM AUTUMNALE.

THIS is one of the showiest cool-house Orchids of the season, its strong, frequently branched spikes of orange-scarlet flowers giving a fine dis-

IVY-LEAVED PELARGONIUMS IN JERSEY.

THE beautiful Ivy-leaved Pelargonium withstands a considerable amount of cold, but does not survive our English winters. In Jersey, however, the plant grows in the open the whole of the year round, and in fig. 143 is reproduced a photograph, kindly sent by Mr. Isaac Malzard, showing plants of the variety *Souvenir de Charles Turner* growing on a wall in his garden at L'Abri, Beaumont. Mr. Malzard informs us that the wall is 13 feet high, and a space of 40 feet is completely covered with the plants, of which there are five. They were raised from cut-



FIG. 143. IVY-LEAVED PELARGONIUM SOUVENIR DE CHARLES TURNER IN A JERSEY GARDEN.

plant throughout October and November. Plants are now in flower in the Orchid nursery of Messrs. Charlesworth & Co., Haywards Heath. The original form, discovered by Dr. Coulter on the high ranges near Xalapa in Mexico, had comparatively small flowers, and the summer-flowering variety, *Majus*, for which Messrs. Rolisson, of Tooting, received a First-class Certificate at the Royal Horticultural Society's meeting on June 15, 1869, has been the one most commonly seen in gardens. The autumn-flowering variety, however, is by far the finest, and produces its flowers at a time when they are the more desirable. It is also the freest in growth.

tings inserted two years ago last spring, and the extraordinary growth they have made may be seen from the illustration. The blossoms were produced this summer in such profusion as to completely cover the plants. The garden being near to the seaside doubtless accounts, to some extent, for the wonderful growth and flowering, as the sea air is very beneficial to all members of the Pelargonium family. Ivy-leaved Pelargoniums grow equally well in the south of France, including districts of the Riviera, where specimens 10 feet high are common, whilst in Ventnor, Isle of Wight, they may frequently be seen covering the fronts of houses to the eaves.

NURSERY NOTES.

MESSRS. JAMES VEITCH & SONS, LTD.,
CHELSEA.

NOTWITHSTANDING the establishment at Felt-
ham, Messrs. Veitch still cultivate certain classes
of plants at Chelsea. On the occasion of a recent
visit to the latter nursery, the *Nepenthes* were in
splendid condition, the pitchers being large, finely
developed, and beautifully marked. Most of the
plants are grown in baskets suspended over a
large tank; indeed, with the exception of the path
and a narrow front staging, the area of this tank
is equal to that of the house. Among the most
noteworthy *Nepenthes* was the hybrid *Sir W. T.*
Thieltz *n*-*Dyer* (*N. mixta* \times *N. Dickinsoniana*),
a plant remarkable for its very large pitchers,
which are richly blotched with brownish-red on
a green ground, the rim being extensively de-
veloped, deeply ribbed, and of a pronounced
bronzey hue when mature. It was raised at Che-
lsea, and when exhibited at the R.H.S., on
August 14, 1900, it gained a First-class Certifi-
cate. *N. mixta*, itself a hybrid from *N. Northi-*
ana and *N. Curtisii*, has also a very striking
pitcher of a pale green blotched with red and
marked towards the mouth with deep crimson.
There is a distinct form known as *N. mixta* *san-*
guinea, whose pitchers are more of a reddish-
brown tint. Others deserving of mention are *N.*
Burkei, *N. Chelonii* excellens, *N. Mastersiana*,
N. Morganiana, *N. Rafflesiana*, *N. Tiveyi*, and *N.*
ventricosa, remarkable for its curiously-contracted
pitchers.

A large house of *Camellias* serves to indicate
the demand that still exists for these beautiful
greenhouse-flowering shrubs. It is true that the
large specimens of former days are not to be seen,
but in their place there are healthy young
bushes from 2 to 3 feet in height well furnished
with flower-buds. Indian *Rhododendrons* seem
to thrive excellently at Chelsea, where many
plants are grown as standards with stems 3 feet
high.

At whatever season a visit is paid to Chelsea,
one is sure to meet with some of the javanic-
jasminiflorum hybrids of *Rhododendron* in bloom.
At the time of my visit the following varieties
were among the more noticeable: *Apollo* (orange-
scarlet), *Creon* (clear yellow), *Diadem* (orange-
scarlet with a carmine suffusion), *Hercules* (fawn
yellow, tinged pink), *Jasminiflorum carminatum*
(rich carmine), *Maiden's Blush* (white, suffused
with pink), *Ne Plus Ultra* (crimson-scarlet), and
The Queen (creamy-white). Of the small-growing
hybrids from *R. multicolor*, the pure-white *Mrs.*
Heal and the deep-red *Ruby* were conspicuous.

A whole house is devoted to the culture of *Begonias*
possessing ornamental foliage. The ex-
treme variability in the markings of the leaves
and the beautiful colours represented in them
should commend these *Begonias* to all those who
practise indoor gardening, especially as they are
of easy propagation and culture and quickly at-
tain an effective size. Those hybrids from *B.*
Bowringiana—*His Majesty*, *Mrs. H. G. Moon* and
The Queen—are conspicuous for their rich colours.

Among those popular greenhouse plants, the
indoor *Heaths*, beside *Erica gracilis* and its
white variety, which are so universally seen
at this season, two other brightly-coloured var-
ieties were very attractive. One, *Erica verticillata*,
is a somewhat upright-growing species. The
flowers are borne in whorls on the upper parts of
the principal shoots, are about half-an-inch long,
and of semi-transparent bright crimson tint. The
other, *E. cerinthoides*, forms a free bushy speci-
men, the shoots being furnished with deep green
hairy leaves. In this species the flowers are
borne a dozen or so together in a terminal head.
They are tubular in shape, about an inch long,

crimson-scarlet in colour, and somewhat sticky
on the exterior.

Ferns, Palms, *Codiaeums*, *Cordylines* and other
popular foliage plants are represented by plants
of all sizes. A noteworthy feature is the influ-
ence that this tropical summer has had on the
Codiaeums, as the leaves have acquired a bri-
lliance of colouring unusual even with them.

Other subjects well worthy of note include
single and double forms of *Hibiscus rosa-sinensis*,
Cannas in variety; *Crowea saligna*, quite a mass
of charming pink blossom; *Gloriosas*; *Alla-*
mandas; *Aschyranthus Lobbianus*, one of the
most useful members of the genus; *Amasonia*
punica; *Mussaenda frondosa*; and *Myrtle Jeannie*
Reitenbach, remarkable for its small leaves,
neat, compact habit, and above all for its great
profusion of bloom, for the fact that quite small
plants flower freely. W. T.

TREES AND SHRUBS.

THE BAMBOO GARDEN.

HARDY Bamboos are at their best during
October and the three or four following months.
During this time they are then full of
vigour, with handsome, deep-green foliage,
which contrasts favourably with that of various
evergreens in the vicinity. Were this con-
dition to last, there would be every excuse for
placing Bamboos in the most prominent parts
of the garden; but, unfortunately, from the be-
ginning of March to the middle of July they
are, as a rule, unsightly, by reason of the dead
and dying foliage, a condition which is hastened
by the cold winds of spring. Therefore, it is
advisable to keep Bamboos away from trees and
shrubs which are at their best in springtime, and
the most suitable position for them is one which
is shut away, to some extent, from the rest of
the garden. An ideal place is a sheltered valley,
with a stream running through it, for shelter
from cold winds is of vital importance to
the well-being of most Bamboos, whilst they are
water-loving subjects, and provision must be
made for an adequate water supply, in the event
of an extended period of drought being ex-
perienced. Providing that rich soil is available,
it matters little whether it is heavy or light, for
excellent specimens may be seen growing in both
kinds. Rich, light soil is advantageous for the
kinds that sucker freely, for, in such ground,
they spread quickly and form very picturesque
groups.

Great assistance may be given to Bamboos
during late spring by cutting away many of the
older branches, taking care to remove them right
to the base, and not leaving a few inches of
stump. This gives plenty of room for the de-
velopment of young culms, and, as young leaves
appear, the plants become presentable at an
earlier date than would be the case if the old
branches were left undisturbed. The applica-
tion of a surface dressing of manure in May is
attended with good results, for, in addition to
supplying the surface roots with food, it helps to
keep the ground beneath moist and cool.

No better time can be found for the trans-
planting of Bamboos than May, for at that time
young shoots are being formed, and the roots are
at their most active stage, consequently, injuries
are soon made good. Plants removed in the dead
of winter, on the other hand, take a long while
to re-establish themselves, and transplanting at
that period is sometimes attended by fatal re-
sults. Propagation is usually affected by division
of the clumps in May, but whenever seeds can
be obtained they should be sown, for seedling
plants may be expected to have a useful life of
30 or 40 years before them, whilst plants ob-
tained by division may flower and die at any
time.

Fewer hardy roots of Bamboo are available
than was the case ten years ago, for, in the
period which has elapsed since the early days of

the present century, several kinds have flowered,
and some appear to have been lost altogether,
for, although flowers are borne with the greatest
freedom, seeds in a few instances only have been
developed in quantity. Of some sorts, good
stocks of seedling plants exist, but it is probable
that other kinds may have to be reintroduced
from Japan or China.

At the present time some of the more note-
worthy species are *Phyllostachys fastuosa*, a
handsome plant from Japan, with strong, up-
right branches, ascending to a height of 18 or
20 feet, clothed with large, dark green leaves;
P. viridiglaucens, one of the oldest and
hardest kinds, with graceful, semi-pendant
branches, and small, light green foliage; *P.*
flexuosa, another Japanese species, of peculiarly
graceful outline; *P. aurea*, of stiffer habit than
the last-named; and *P. Quiloi*. *P. nigra* and
its various varieties are very attractive Bamboos,
but, unfortunately, they flowered a few years
ago, and few seedlings appear to have been ob-
tained.

Amongst the *Arundinarias*, *A. nitida*, a species
from Central China, is one of the daintiest
of all Bamboos. Its small, bright green leaves
are borne on graceful, arching branches, 8 feet
or more long. *A. anceps* is another free-growing,
attractive plant, peculiarly adapted for loose
ground, where it can have plenty of room to
sucker freely and spread over a considerable
area. *A. Simonii* grows to a height of 16 or
18 feet, and forms striking-looking clumps. It
flowered a few years ago, but, fortunately, a
good crop of seeds was procured, from which
nice young plants have been obtained. *A.*
Hindisi var. *graminea* is another tall-growing
Bamboo, of handsome appearance. *A. Kuma-*
sasa, better known as *Bambusa palmata*, is easily
distinguished by means of its large leaves, which
are frequently 8 or 9 inches long, and upwards
of 2 inches wide. It grows very rapidly, and
requires a great deal of space for its proper
development. It may, however, be kept within
bounds by removing the suckers occasionally.

Apart from the taller-growing sorts, there are
several smaller-growing kinds which are well
worth attention. Of these, *A. auricoma*, *A. For-*
tunei, *A. humilis*, *A. pumila*, and *A. pygmaea*
all deserve attention.

In Cornwall and other places with a similar
climate some of the more tender species, such
as *Arundinari falcata* and *A. Falconeri*, may be
grown. Formerly, very imposing clumps of these
species were to be seen, but they flowered a few
years ago, and the majority of the plants seen
now-a-days are small. D.

PLANT NOTE.

TORENIA ATROPURPUREA (RIDL.)

THIS species (figured in *Bot. Mag.*, 6388, and
referred to in *Gard. Chron.*, September 2, p. 171)
differs from *T. asiatica* in that it is a creeping
plant, while *T. asiatica* is a short-lived, erect
herb, and practically annual.

On seeing the light-blue colour of the flowers in
the *Botanical Magazine*, some will wonder why
it was called *atropurpurea*. The original form
here is, however, of a very deep black-purple.
I found once in the Ulu Batang Padang Valley,
in Perak, a form in which the corolla was half
cream colour and half black-purple, a most beau-
tiful and striking plant, the line between the two
colours being quite distinct. I could get no seeds
of this, and failed to get it down alive.

The plant figured may be a variety from
Sumatra, or it may have gone off its normal
colour. It is certain that in many plants which
I have sent to England the colouring of
the flowers or leaves has not come up to the
brilliance, and especially the depth, of colour
that they have normally here. This is, I think,
due to the lack of our brilliant sunlight in
England. H. N. Ridley, Singapore.

THE ROSARY.

ROSE HEINRICH MUNCH.

HEINRICH MUNCH is the name of a new Rose recently obtained by the firm Münch & Haufe, of Leuben, near Dresden. The colour is stated to be a clear pink of the shade found in the centre of Capt. Christy, the flower is fairly full, and the petals of the open blossoms are reflexed in the manner of La France. The outer part of the petals is tinged with yellow. The Rose was raised from seed borne by Frau Karl Druschki, the pollen parent being (according to the *Rosen Zeitung*) either Caroline Testout or Mrs. W. J. Grant, and the Rose is stated to resemble the seed parent in habit. It is added that the flowers are borne singly on long, stiff stems, and that the Rose will be found useful for garden decoration for cutting or for forcing. It has been well spoken of in Germany, and its merits as a Rose for forcing are particularly emphasised.

Mons. P. du Plouy, a writer well known to readers of the *Journal des Roses*, states that the plant is as vigorous as Reine des Neiges (Frau Karl Druschki), has few thorns, and is covered with pleasing green foliage. The buds are rounded more often than pointed, and are carried on long, straight stems; they come singly, and open slowly but readily. The flowers are large, full, and of the most beautiful silvery Rose imaginable; they last a long time in the half open stage, and will easily stand travelling without flying. One of their great qualities is that the petals, while reflexed towards the outside of the flower, seem at the same time to cover in the heart in a way that somewhat reminds one of La France, though the colour is softer, clearer, and more pleasing to the eye.

Ever since the introduction of Frau Karl Druschki, 11 years ago, hybridists have been at work trying to obtain a coloured form of that fine Rose, but down to the present the pink Druschkis and red Druschkis that have been presented to Rosarians have failed to equal their supposed parent in its qualities of purity of colour and form. Should Heinrich Munch be found to possess these qualities when grown in this country, it may be assumed of a variety by Rosarians. Judging only from the form of the flower as shown in fig. 144, it would seem more likely that Caroline Testout was the pollen parent than Mrs. W. J. Grant, but this hardly affords an explanation of how the yellow colouring may have been acquired, and as nothing is said as to fragrance, it may be the Rose takes after its seed parent in this respect. Be that as it may, we shall look forward to the coming of Heinrich Munch with interest, and shall hope to give it a fair trial later on. *White Rose*.

THE ORLEANS ROSE.

I VENTURE to predict a great future for this Polyanthus variety, it has so many points in its favour. In the first place, it has a vigorous constitution, and it flowers abundantly and continuously. Then the colour may be said to be unique, being described by some as "geranium-red," although all those I have seen as of a rose-pink. Its most remarkable feature is yet to be mentioned, namely, the longevity of the blossoms. Those on a plant which I have in a pot expanded on April 22 last; a fortnight later the plant was placed in the open ground, but even then the blossoms did not fall, and some of those which came out in April remained for several weeks. I advise all Rose growers to add this useful variety to their collections. *E. Mulgrew.*

ROSE MME. HECTOR LEULLIOT (J.T.).

MR. G. M. TAYLOR'S interesting note on Mme. Hector Leulliot, induces me to give my own experience of this Rose in the near neighbourhood of London, and to express the hope that he may perhaps give us some further information as to the treatment he has found to be

so satisfactory. Mme. Hector Leulliot is undoubtedly a most beautiful flower, fragrant, and grand in colour; the latter early in the season sometimes almost approaching the Lyons Rose, though more usually of a fine deep orange, and at other times a golden yellow with buff or pinkish shading. It is also a fine strong grower, hardy, and with good leathery foliage, nearly, if not quite, immune from disfiguring disease, but with this I must part company from Mr. Taylor, for I have found it a very shy bloomer. The flowers are lovely when we get them, but we find too few of them.

I tried this Rose first as a dwarf, but, finding its long growths rather unmanageable, and hoping to improve its flowering. I put it in a standard, in which form I now grow it. As a

bedding Rose. La France is another variety which usually gives me, with proper treatment, a fair supply of tolerable flowers, at least if the weather be propitious, while my neighbours on the Harrow clays tell me that it is worn out and its constitution gone. Can Mr. G. M. Taylor assist us with Mme. Hector Leulliot? What is the secret of its barrenness? Is it the soil or the treatment, or must we long for the dewy nights and long summer days of Scotland as the essential factor to ensure success? The Rose is so beautiful that the answer to the question is of importance to Rosarians, both north and south of the Tweed. *White Rose.*

REFERRING to Mr. G. M. Taylor's interesting article (see p. 299) on this Rose, I note that he



FIG. 144. ROSE HEINRICH MUNCH: COLOUR TINGE.

standard it has made a fine head, and I think it gives me rather more flowers than I had before from the dwarf, but they are still all too few, and perhaps there are, after all, better ways of treating it. Sometimes treatment is at fault, at others it is climate, and we are helpless. I know well there are Roses which will flower freely and well in some gardens, which in others are of little value. The Earl of Warwick is an instance in point. In my garden it gives me no flowers of any value till the autumn, and then they are often of but poor quality, while some of my friends, not many miles away on the Essex clays, find that this Rose gives good flowers through the whole season. Some have even found it sufficiently free to make a good

mentions that Mme. Hector Leulliot is perhaps the best variety of the group of yellow varieties introduced by Mons. Pernet Ducher. I should be glad to know from Mr. Taylor, on what points he formed that opinion. I consider Mme. Ravary the best all-round yellow Rose introduced by Mons. Pernet Ducher. Moreover, Mme. Hector Leulliot is a semi-climber in growth, and, in most situations, a very shy bloomer. Billard et Barré is a much superior variety to Mme. Hector Leulliot, being a more profuse bloomer, and its colour a brighter yellow. I should be glad to hear other opinions on the subject, as most of us are interested in yellow Roses of all shades and of various habits. *Chester Parker, Norwich.*

The Week's Work.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of Harrington, K.T., Tynningham, East Lothian.

ROSE CUTTINGS.—Many kinds of Roses may be propagated from cuttings, although all are not amenable to this method of increase. I believe that *Rosa hemisphaerica* has never been propagated from cuttings. Although the nurserymen find it the better plan to bud their plants on strong stocks, gardeners and amateurs will find plants raised from cuttings quite satisfactory. I have raised several hundreds of a new variety of Rose during the past season in a propagating pit, but this is not necessary at this time of the year, a somewhat shady border being more suitable. Select well-ripened young shoots with, if possible, a heel of the old wood attached, a stout shoot about 15 inches in length being preferable to a weaker one that is not so long. It is necessary to place at least 9 inches of the cutting below the soil, in order that the part where the roots form will keep sufficiently moist. My practice is to insert the cuttings in rows in trenches, making the soil very firm about them. The comparatively new hybrids of *R. Wichuriana* are especially easy of increase by this means, and, in this case, comparatively small shoots may be employed. This type of rose is so valuable for covering wire trellises, fences, &c., that those who have plenty of shoots available should insert a considerable number of cuttings, and no time should be lost in doing the work. I especially recommend that Dorothy Perkins and others of that type be largely increased by this means.

CHRYSANTHEMUMS.—Out-door Chrysanthemums have been valuable in the garden this autumn, and in dry, sheltered positions the plants will continue to flower for some weeks to come. In the majority of cases, however, the flowers will be over by now, and the plants should be lifted for stock purposes without delay. Boxes used for raising cuttings are most suitable for storing the old roots, and, if the latter are raised with a fair proportion of soil attached to them, it will not be necessary to use much extra soil. As a preventive against slugs and frost a covering of leaf-mould to the depth of 2 inches should be placed over the plants, or coconut fibre may be used for the purpose. If most of this material is allowed to remain until growth has commenced afresh in spring, after transferring the boxes to a warm house, the shoots will become drawn as they grow, and form a superior type of cutting. At this stage I remove all the bottom growths that are to be half, most of them with roots, and dibble them into soil in cold frames. By the following April these will have developed into fine, hardy plants.

THE RESERVE GARDEN. It is advisable for several reasons, to set apart a portion of ground for the cultivation of flowering plants other than those that are required for decorative purposes. These reserve plants will furnish a supply of cut blooms, and be available for replacing any that have died in the beds or borders. They also provide an excellent means of increasing the stock, and generally prove very valuable. The best place for this reserve quarter is a good position in the kitchen garden or near to it. The ground should be well cultivated, and afterwards made very firm, to favour the production of a mass of roots, which will enable the plants to be shifted, if need be, successfully. I would recommend that a few each of the better varieties of late Phloxes, a selection of Michaelmas Daisies, Eupatoriums, Solidagos, Campanula persicifolia and its varieties, Veronica sessiliflora, Helium, Lavender, Monarda, Polygonum oxypetalum, Helianthus multiflorus in variety, Scabiosa caucasica, Galatella incana and Erigeron speciosus superbus be planted in this manner. In spring and early summer these should be supplemented with annual and other short-lived plants. In every case any manure that is applied should be placed near to the surface, and not buried deeply.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., C.I.E., Westnabitt, Gloucestershire.

PREPARING FOR WINTER.—During the dull days of winter all the light possible is needed by the plants, whether in the coolest or warmest divisions, hence no time should be lost before cleansing the houses and putting everything in order. The glass and woodwork of the houses should be thoroughly washed, both inside and out. It is a great advantage if each house, as it is taken in hand, can be cleared of its occupants, to permit of the ventilators and doors being opened widely for a few hours after the work is done to sweeten the atmosphere before rehousing the plants. All stagings should be thoroughly scrubbed, inside walls washed down, and the moisture-holding material in the house turned or renewed as the case demands. In summer, the algal and other green matter does not accumulate so rapidly as in winter, nor are its effects so bad, because fresh air can be more freely admitted at that season. Cleanliness forms an important feature in the successful culture of all plants, but none more so than Orchids. By keeping every thing clean about the plants, and giving reasonable and proper ventilation, the plants will grow cleaner and be freer from insect pests. Rubbish of any kind should not be allowed to accumulate in Orchid-houses, especially about the hot-water pipes, as this offers hiding places for wood-lice, cockroaches, ants and other insect pests. Tradescantia, Pilea muscosa, Begonias of the Rex section and similar plants are often introduced in Orchid-houses for decorative purposes, being grown on the stages or the ground. The growing of these plants in this manner is not to be recommended, as they harbour slugs, snails, and other insect pests. Another disadvantage is that the luxuriant growth these plants usually make under warm, moist conditions is a hindrance to the free circulation of air about the house. Suitable night temperatures will now be from 60° to 65° for the warmest divisions, 55° to 60° for the Cattleya or intermediate-house, 54° to 58° for the cool intermediate-house, and 50° to 54° for the cool-house. During the daytime a rise of from 5° to 10° should be permitted, according to the condition of the weather. Much less moisture is now required, especially in the cooler divisions, where evaporation is slow. A careful watch should be kept on the outside conditions, for as the wind changes, so will the temperatures of the houses be affected. When east or north-east winds prevail, a considerable amount of artificial heat will be necessary, and this, again, necessitates increased damping of all bare surfaces beneath the plants. Guided by the state of the weather, air should be admitted daily to the different structures proportionate in quantity to the nature of the occupants, but fog and frosty air must always be excluded.

FRUITS UNDER GLASS.

By F. BUCKLEY, Gardener to the Hon. Venerable Gills, Aldenham House, Hertfordshire.

FORCING.—In early gardens the forcing of various subjects in the fruit-houses will have been commenced by this date, and it will need unremitting care and attention on the part of the grower to secure the best results. In all cases forcing must be gentle at first, and, during the early stages, fire heat should only be employed at night-time, when the weather is exceptionally cold, and even then, very carefully. During the daytime, when the weather is bright and warm, free ventilation must be given, and about mid-day the paths damped, but avoiding a saturated atmosphere, and especially towards evening. Much depends upon the structure of the house as to the amount of water necessary to provide a proper amount of humidity. Where open iron gratings are employed, much less moisture will be needed than in houses with pathways of flagstones, and where oftentimes a channel underneath contains the hot-water pipes. Early houses of Figs and Vines in pots that are plunged in fermenting materials will derive a certain amount of humidity from the plunging materials. Should the weather be very cold, sufficient heat should only be used in early Peach-houses to prevent the temperature falling below 45°, but pot Vines and Figs may be allowed 5° higher. Spray the

plants daily when the weather is bright, and tie the canes of Vines in a horizontal position.

POT FIGS.—The method of growing Figs in pots has much to recommend it, and it is surprising that a large quantity of fruit of excellent quality can be obtained in this way, provided proper attention is given to the stopping and regulating of the shoots. As the roots are in a very restricted space, stimulants may be afforded frequently and liberally. The pots are best plunged in a mild hotbed composed of equal parts of long, strawy litter and tree leaves. For early work select trees with thoroughly mature wood, such as those that were forced earliest last year. An excess of water at the roots must be avoided, as much water will not be needed until growth becomes active. It will be necessary at this date to protect from frost Fig trees still in the open.

THE ORCHARD HOUSE.—Trees in pots intended for furnishing the Orchard-house that are still in the open must now be plunged to the rims of the pots in leaves or ashes, to prevent injury to the receptacles from frost. Guard against American blight attacking Apple trees, and paint infested spots with methylated spirit.

TOMATOS.—A sowing of Tomatoes may be made now to furnish plants for fruiting next spring. I find the most convenient method is to sow in 6-inch pots that have been well washed and suitably drained, covering the drainage material with fibrous loam. Use a compost of finely-sifted loam, leaf-mould and sand, and sow the seeds thinly and evenly, placing the pots in a house having an intermediate temperature. Cover the pots with a pane of glass, removing this each morning for a short time. As soon as the seedlings appear place the pots on a shelf fully exposed to the light, and, when they are large enough to handle, transfer them singly into small 60 pots. Damp their surroundings occasionally with the syringe, and when the plants are in need of a support, tie them to thin sticks. Endeavour always to promote a dwarf, sturdy habit.

THE HARDY FRUIT GARDEN.

By W. HULLY WARRER, Aston Clinton Gardens, Buckinghamshire.

THE ORCHARD.—An orchard should always be situated where there is a free circulation of air, in a southern exposure or one that has a little incline to the south-east or south-west. Where the situation is low, or confined, the trees become infested with moss or lichen, either of which, if allowed to remain on the trees, is very injurious. A screen of forest trees on the north or east side, at such a distance from the fruit trees that the latter are not shaded by them, is of very great advantage by protecting the trees from cold winds and spring frosts. A rich, strong, loamy soil, not too retentive of moisture, to the depth of about 3 feet, is most suitable for orchard trees. The drainage should be perfect, for though the top soil be all that is required, if the sub-soil is wet and cold, the trees will not succeed, but will soon become diseased. Therefore, if the substratum of soil is not naturally porous, it must be made so: the extra expense incurred will soon be repaid by the fertility and prosperity of the trees, which will continue to bear long after others that are planted in a cold, or undrained soil. Whatever system of drainage is selected, it should be arranged to carry any excess of moisture entirely away from the site of the orchard. Whether manure is needed or not when the ground is being prepared for the planting of the trees, will depend on the quality of the soil. In planting orchard trees never place the roots deeper than is absolutely necessary for supporting the tree. The distance apart should be regulated according to the variety and other conditions described in the Calendar for September 23. As the distances given are sufficient for the trees when they are in bearing, it is a very good plan, particularly in cold districts, to plant other quick-fruited trees in the spaces between them, removing them when the space is required by the permanent trees. After the trees are planted, they should be mulched, watered, and secured to stakes, using haybands as ties. No other crops should be cultivated in ground in which the roots of the trees extend. During summer weeds should be kept under by hoeing the surface frequently. With regard to the pruning of orchard trees, it is scarcely possible to lay down any hard-or-fast

rule that will apply to all kinds, but it is indispensably necessary to keep all the branches sufficiently transparent to pass at them the light which each other. Many varieties and kinds grow naturally in a form peculiar to themselves, and this should be followed as closely as possible in training, always keeping the bearing shoots well apart. The forming of the head of the tree must be commenced the first season after planting, by retaining a sufficient number of young growths, regulating these on all sides to preserve a well-balanced specimen, and rubbing off all others. If the main leader should at any time be accidentally broken, a lateral shoot should be trained into position as a substitute. This attention to forming the head must be followed up for three or four years from the time of planting, after which it is seldom necessary to shorten the end of a leading branch. After the trees have reached the bearing stage, they must be pruned regularly every year, keeping the branches well apart, and avoiding much growth in the centre, which would prevent the sun and air from reaching every part of the tree. Specimens that are attended to regularly every year will bear more abundantly and produce finer fruit than those that are pruned only once or twice in the course of ten years, as is too frequently the case.

PLANTS UNDER GLASS.

By JAMES HARRIS, Gardener to the Earl of ROTHSCHILD, Esq., Grosvenor House, Acton, Middlesex.

PALMS.—The last summer has suited all kinds of Palms, favouring the development of a hard, enduring growth, which is so desirable, especially in the case of those used for decorative purposes indoors. It will be advisable to examine the stock, with a view to checking insect pests. Some, and especially those that require a close temperature, are very susceptible to attacks of red spider; species of *Thrinax*, *Euterpes*, *Cocos*, and *Hyophorbes* are all liable to infection of this troublesome pest. Many kinds of scale insect are injurious to Palms, especially to *Kentias*, species of *Phoenix*, and *Latanias*. This insect often attacks the leaves at the base of the petiole, and in such cases care must be taken not to use insecticides too freely. It is better to use a brush for painting the infested parts with the specific, but it is no use attempting to detach the scales at the same time, rather let them be killed by the insecticide and removed later. Whatever preparation is employed for the purpose, it should never be used at a greater strength than that advised by the makers. Also take care that the mixture is shaken, so that the ingredients may be well mixed before it is employed. When a quantity of the mixture has been poured into a suitable receptacle, weaken it with warm water to a temperature of about 110°. If the plants are examined in about a week or so after the insecticide has been employed, it will be found, in nearly every instance, that the insects are dead, and may be removed easily by means of a sponge soaked in a weaker solution than was used first. The scale clings tenaciously to the plants, and some growers try to remove them by means of a pointed stick, but this is a wrong practice. If the stock of Palms is a large one, it is a good plan to syringe the plants over all with a fairly strong preparation of soot-water, to which has been added a little size, which will cause it to cling evenly over the surface. This method is adopted by trade growers, and although the plants are rendered unsightly for a short period, the object for which it is applied is ultimately attained. Afterwards a careful sponging with a little soft soap in warm water will restore a cleanly appearance. Soot, if used with discretion, will impart a green colour to the leaves, acting as a manure. The receptacles, whether pots or tubs, should be made clean and tidy. If worms are present in the soil, water the plants with lime water, when the worms will generally appear at the surface on rapping the pots.

TEMPERATURES. The usual temperature maintained in the stove—55° to 60° as a minimum—will be suitable for Palms of the more tender kinds in the winter season, with the exception of a few, such as *Strobanthus grandifolius* (*Pheniceophorum Sechellarium*) and *Versaffeltia splendens*. *Kentias*, which are amongst the most useful of all Palms, do well in a temperature not lower than 50° or 55°. Almost all the members of the family require a very moist atmosphere and plenty of water at the roots. Some, such as

Coryphas and *Latanias*, will grow well in an ordinary greenhouse, whilst *Thamnocalamus excelsus* is not harmed if the temperature reaches the freezing point under glass.

PLANTS IN PITS AND FRAMES.—Both *Cyclantheras* and herbaceous *Calceolarias* should be quite safe for another month or six weeks in a cold frame; though efficient covering should be in readiness to protect them during times of frost. Dry mats should be used, as wet ones are not nearly so good a protection. If the glass should become frozen, care must be taken not to admit any fresh air to the plants until the frost disappears. *Primula sinensis* will thrive well in a slightly-heated frame or pit; better, indeed, than in a large, airy house. The same treatment may be recommended for *Cyclamen latifolium*, though this plant should have a little more moisture than the *Cyclamen*. If space is limited, the large-flowering *Show* and *Regal Pelargoniums* may be placed in pits, and afforded slight warmth in frosty weather. In most gardens there are not nearly enough pits, notwithstanding that many plants thrive better in such places than in cool houses; and, further, it seems a waste of valuable space to store large numbers of small plants in the houses. After the earliest plants of *Chrysanthemums* are past, there will be more room in most gardens; advantage may be taken of this to give increased space where unavoidable overcrowding has occurred. The tendency is, in most gardens, to grow rather too many *Chrysanthemums* for November flowering.

THE KITCHEN GARDEN.

By JOHN LASS, Kitchen Garden Foreman, Royal Gardens, Windsor.

RHUBARB.—Provided the roots have been lifted and exposed to the weather for a few days, the forcing of Rhubarb may be commenced at once. If a small supply only is required, the roots may be placed under the top of a well-lit glass house, but away from the direct influence of the hot-water pipes. The Mushroom house or a warm cellar are also suitable. At Windsor, we force large quantities of Rhubarb during winter and spring, and mostly in ordinary, flat pits, where a little fire-heat can be applied when necessary. A mild, lasting bottom-heat is provided by beds of tree leaves, trodden tightly together. A layer, six inches deep, of fine soil is placed over the bed, and the roots are laid as closely together as possible, the spaces between them being filled with fine, rich soil as the work proceeds. Dawes's Champion is our favourite variety for forcing, and the roots are planted for the purpose three years previously. The shoots are quite large enough, and respond to forcing better than roots which may have been in the ground for twice as long a period. If the soil is moist at the time it is placed around the roots, very little water will be necessary until growth commences, but any roots that are exposed to hot, dry air will require damping frequently.

SEAKALE. If stocks of seakale are to be prepared in sufficient numbers to furnish roots for forcing all through the winter and spring without a break, forcing may be commenced at once. But if the supply of roots is limited, forcing had better be delayed for a week or two, as it is better to start late than have the crop run short in the spring. In small establishments an occasional dish may easily be produced by placing a number of roots rather thickly in large pots and filling in the spaces between them with fine, rich soil, which should be pressed tightly amongst the roots with the fingers. The pots may afterwards be stood in the forcing pit, or they may be placed in a Mushroom house, or any dark place, where there is sufficient heat to start the crowns into growth. But in order to thoroughly blanch the shoots, other larger pots should be inverted over those in which the crowns are planted, and all light excluded by stopping up the crevices with damp moss. If the soil is used in a moist condition, no water will be necessary until growth commences, when clear water, warmed to 70°, may be applied as necessary. If the pots are plunged in a mild bottom heat, so much the better. If large supplies are required, the best plan is to plant the crowns closely together in a gentle hotbed, composed of leaves. A smothered pit with wooden

shutters is best for this purpose, and it will be an advantage if fire-heat is available during times of frost. At Windsor we force all our Seakale in this way; each division of the pit holds about 1,500 crowns, which furnishes about one week's supply. In preparing the beds for this crop, it is necessary to turn the fermenting material several times to sweeten it. If the bed should become too hot, the result will be fatal to the roots. When the beds are prepared they will carry two or three crops of Seakale in succession without the introduction of fresh heating material. All that is necessary is to examine the soil when each batch of roots is planted, and if it is found to be too dry a good watering should be given to each row of roots after they have been placed in position, and the soil made tight about the roots as planting proceeds. The depth of the soil should be at least nine inches. When lifting the roots for forcing, cuttings should be secured to furnish next season's crop. They should be inserted in a horizontal position in some sheltered part of the garden, and covered with four inches of soil, over which a covering of ashes should be placed if sharp frost sets in. Select the cuttings as nearly the same size as possible, and endeavour to grow the crowns as large as possible.

THE FRENCH GARDEN.

By PAUL AQUILA.

SPRING CROPS. It is essential that seedlings of Lettuce and Cauliflower should now be well-established in their winter quarters, either in frames or under cloches. Some growers examine the batches of plants in order to replace any that are missing, and this should be done without delay, as these late-planted Lettuces are always backward in their growth, and being smaller than the others are often thrown away when planting is done in the early spring. The present season is remarkable for the scarcity of slugs, which are very destructive to seedling Lettuces; but very little damage may be expected if they do not appear for another fortnight. It is, however, necessary to examine the cloches and the frames in the early morning, and any slugs that are seen should be destroyed. The general appearance of all seedlings is better than it has been for some years past; they are healthy and even in growth; therefore, as soon as the growth is a little further advanced, ventilation may be afforded to Cos and Passion Lettuces, but it would be best to wait until the end of November before opening the glass where the "Little Gots" are growing. Air must be given day and night to Cauliflowers, except in frosty weather, in order to promote a healthy and sturdy growth throughout the winter, and to prevent a precocious development of the inflorescences. Seeds of Cabbage, Lettuce "All the Year Round" or "Georges" and Cos Lettuce "Paris White" should be inserted in a frame or under cloches to supply plants for setting out late in March. There is a tendency for a better demand for this produce than formerly. Where a small greenhouse is available, the seeds may be sown very thinly in boxes, and the seedlings should remain undisturbed until late in February, when they should be pricked out. The programme for next season must be made out according to the quantity of material at the grower's disposal. This year's market for early produce has proved that prices for Lettuces are more remunerative in April than earlier. The quotation for Carrots fell rapidly early in June, but Turnips always commanded a good price. Vegetable Marrows, as a forced vegetable, proved an excellent crop in May and June, and easy of cultivation with a little hot manure, and the shelter of cloches.

WINTER CROPS. Chichey's "Withoo" will soon be ready for forcing. Many methods are adopted, according to the means available. One of the most economical is to dig a trench 4 feet wide and 10 inches deep. The roots, after having been cleaned, especially near to the crown, are placed in the trench in rows 3 inches apart. They are covered with a layer of 3 or 4 inches of fine sifted soil. Frames and lights are then set over them, and these are covered with mats. When possible, the path between the frames is filled with manure, which favours a quicker growth and prevents drought.



MECONOPSIS INTEGRIFOLIA,
PHOTOGRAPHED IN ITS CHINESE HABITAT BY MR. GEORGE FORREST.

SUPPLEMENTARY ILLUSTRATION.—*Meconopsis integrifolia* was first discovered in the province of Kan-Su, China, and was introduced to Europe in 1894 by Mr. E. H. WILSON, who was assisted by Messrs. JAMES VITCH & SONS, Chelsea, and was first figured in our issue for October 1, 1904. Since that time quantities of seed have, from time to time, been received from Western China by various firms, but, despite this, the plant is not commonly met with in cultivation. Mr. FORREST informs us that the plant grows abundantly in the province of Yunnan, at certain altitudes and in certain situations, on most of the mountain ranges north and west of lat. 27° N., long. 101° E.; he adds that these small, stony, wild, or Alpine meadows, where whole hillsides are starred with its sulphur-coloured, nodding blooms, it is remembered for ever. Its altitudinal range is not great, approximately from 11,000 to 13,000 feet, and the finer specimens are generally found where the pasture is least luxuriant. On parts of the Lichiing Range, lat. 27° $30'$ N., it is common, but there it does not flower until June, and only then in situations where the winter snows have entirely disappeared and the soil is partially warmed by the sun. Much farther north and west of the above range, on the great Mekong-Salwin divide, it thrives exceedingly in a more rigorous atmosphere. Mr. FORREST found it there late in May. He met with superb specimens in perfect flower, growing in the first melted hollows of deep snowdrifts in a very cold atmosphere, and on ground which at the time was practically bog. Judging from this, it seems almost certain that the plant is a lover of moisture and a light, stony soil. It is a free-flowerer, normal plants generally bearing from four to seven blooms; Mr. FORREST found one specimen carrying 11 flowers. There appears to be two forms, one which may be called the more southern, having the corolla widely-expanded when in full bloom; the other, or more northern, having the petals incurved, somewhat after the habit of a *Trollius*. Our illustration is reproduced from a plate of a plant growing in the Lichiing Range, and is probably the first published showing the plant in its native habitat.

PROPOSED ORCHID SHOW AND CONFERENCE.

At the meeting of the Orchid Committee of the Royal Horticultural Society on Tuesday last, the Chairman, Mr. J. GURNEY FOWLER, stated that several Orchidists had expressed opinions to the effect that an autumn Orchid show and conference were desirable, and he wished to have the opinion of the Committee in order that he might bring the matter before the Council. The members of the Committee unanimously agreed that the project ought to be carried out, and the majority voted for the first meeting to take place in November, 1912.

ROYAL METEOROLOGICAL SOCIETY.

A meeting of this Society will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, November 15, when the following papers will be read: 1, "The Abnormal Summer of 1911," by Mr. CHARLES HARRISON; 2, "Notes on Solar Habits," by Mr. WALTER LAMBERT, M.A.

THE PRESERVATION OF TREES AT CHISWICK.

The Lombardy Poplars which stand opposite to the L. and S.W. Railway Station at Chiswick are not to be sacrificed during the widening of the road at that point. The *Standard*, which reports this decision of the Chiswick Council, states that it has been arrived at in deference to strongly-expressed local public opinion. It is to be hoped that the successful intervention of the public in this case may encourage similar efforts elsewhere.

NATIONAL CHRYSANTHEMUM SOCIETY.—A conference will be held by the National Chrysanthemum Society at Carr's Restaurant, Strand, on Monday, December 4, at 7 p.m. The chair will be taken by the President, Sir ALBERT ROBERT. Papers will be read by Mr. F. W. LADDS on "The Culture of Disbudded and Spray Blooms," and by Mr. P. A. CRAGG on "Soil Preparation, and the use of some Chemical Foods." The annual dinner of the Society will take place in the Royal Venetian Chamber, Holborn Restaurant, on Wednesday, November 29, at 6.15 p.m. for 6.45 p.m. Tickets may be obtained from the Secretary, Mr. RICHARD A. WILLY, 72, Savoy Hotel Road, Gospel Oak, London.

BRITISH LINEN BANK HORTICULTURAL SOCIETY.—Owing to the success of the flower show held in July last, at the British Linen Bank, London, a society composed of members of the staff has now been formed under the above title. At the first general meeting held on the 26th ult., a committee of management was elected, and the necessary arrangements were made for the framing of rules and other details. We trust that this will be but the beginning of a practice that may eventually become popular in all the large banks.

MR. and MRS. ALEXANDER DEAN, of Kingston-on-Thames, who were married in the Parish Church of Millbrook, Southampton, on November 4, 1854, passed the 57th anniversary of their wedding on the 4th inst. Both are in excellent health and lead active lives. Mrs. DEAN completes her 81st year next March, and Mr. DEAN his 80th year. The latter, who has been one of the horticultural instructors under the Surrey Technical and Education Committee for 20 years, is still able to give lectures in various parts of the county during the winter months, and in summer engages in the judging of cottage gardens and allotments and rural flower shows. His first contribution to the *Gardeners' Chronicle* was published some 45 years ago, and he has been a frequent contributor from then to the present day.

MR. THOMAS STEVENSON.—At the Paris Chrysanthemum Show, which opened on the 3rd inst., this well-known gardener at Woburn Park, the residence of E. MOCATTA, Esq., obtained a series of successes. He entered in five classes, staging in each case some grand blooms, which were the admiration of the numerous visitors. The exhibits were all grouped together, and occupied a most prominent place in the show, and the taste displayed in their arrangement was of a high order of merit. The jury awarded the exhibitor a work of art, three large gold medals, and a large silver-gilt medal. Mr. STEVENSON exhibited as an ordinary member of the National Horticultural Society of France.

ENGLISH EXHIBITORS ABROAD.—At the recent Paris Show, Messrs. STUART, LOW & Co. staged Carnations in vases, for which they received a well-deserved award. In the Orchid Room our representative noticed a collection of *Cypripedium labiata*, from Mr. EDWARD V. LOW. We hope in our next issue to give a report of the Paris Show, pressure on our space preventing us from doing so this week.

SANDGATE ARBOR DAY.—At a meeting held at Enbrook on the 4th inst., to consider the question of instituting a local Arbor Day, it was unanimously resolved, "That the first celebration of Arbor Day in Sandgate take place on Saturday, December 2." Arrangements were made for a lecture to be given on November 22 by Mr. E. D. TILL, of Eynsford, on "The Origin and Use of Arbor Day."

MR. E. F. HAWES.—Mr. ELDERBERT F. HAWES, for the past 15 years garden superintendent for the Royal Botanic Society, Regent's Park, has retired from this position. In recognition of his services the Council has awarded Mr. HAWES the Society's gold medal, a unique distinction for a member of the staff. The employees have presented him with a gold Albert. As principal of a new school of horticulture now being established at Hampstead, to be known as the Imperial School of British Horticulture, Mr. HAWES will find ample scope for further work.

WINCHMORE HILL PARK.—The Middlesex County Council is granting £5,626 towards the purchase by the Southgate District Council of 90 acres of land at Winchmore Hill for the formation of a public park. The land in the vicinity is to be used for building purposes, not, however, in the usual haphazard way, but according to a properly planned scheme.

PAYMENT ON DELIVERY.—It is curious that in a commercial country no simple means exists whereby the vendor and purchaser are insured against dishonesty on the one side or other when transacting a small affair. A case has been brought recently to our notice, and as it is not unique we may use it to illustrate our point. A advertiser for a certain commodity, B writes to say that he will provide it on certain terms to be paid in advance. A sends the money and B decamps. We have urged more than once that it would be a great boon to small traders if the Post-office would institute some such system as is in vogue in France. That system in the above case would work as follows:—B replies to A's advertisement and asks for prepayment. A replies that he will pay on delivery, and B's career of dishonesty is interrupted. The fact that under present circumstances when A, irate, invokes the police, it is found that B has left behind him piles of envelopes, which indicate that the victimised are many. B changes his address and name and continues his nefarious practice in the certitude that the simple are still with us, and that for such the *Letter of Advice* was written in vain.

THE UNIVERSITY OF MANCHESTER NEW BOTANICAL LABORATORIES.

The new botanical laboratories of the University of Manchester were formally declared open by Dr. SCOTT on Friday, November 3. The laboratories, which are contained in a separate building in the new Estimation block, are admirably planned. The building, which consists of four main floors and two mezzanines, was designed by Mr. PAUL WATERHOUSE. It provides ample accommodation, not only for large classes of elementary students, but also for more advanced classes and for research work. Ample space is set apart both for paleobotany and for cryptogamic botany, both of which branches are actively pursued by the botanical staff of the university, the former branch under Professor WEISS, who maintains the traditions established by WILLIAMSON, and the latter branch under Professor LANG. The cryptogamic department is concerned not only with purely scientific investigations, but also with those relating to diseases of plants and their economic bearings on agriculture and horticulture. In connection with the economic side, the university is fortunate in the possession of an experimental ground on the Bohrens Estate, Fallowfield, where experiments in genetics and kindred subjects are conducted. The cost of the new buildings is about £12,000, towards which sum Mrs. C. J. SPENCE has contributed £1,000. After the formal opening, Dr. SCOTT delivered an address, which dealt largely with the work of the late Professor WILLIAMSON, the first professor of botany in the Owens College. Later on in his

address Dr. SCOTT referred to the connection of botanical studies with the practice of agriculture. Students for the degree of B.Sc. in agriculture obtain in the Manchester University their training partly at the Agricultural College at Holmes Chapel and partly at the university, and this was quite in keeping with the traditions of the professorship of WILLIAMSON, who used to go about lecturing among other subjects, on farming. He, Dr. SCOTT, had been asked to say something on this subject, about which he did not profess to know a great deal. In Hampshire there were a number of small holdings, not under the County Council, which were so far a failure, but by means of co-operation better things were hoped for. One felt that here agricultural science might be able to help. What was wanted was to help those who had been trained on the land, so that they might remain on the land and be able to make a decent living. At the conclusion of the ceremony a vote of thanks to Dr. SCOTT was proposed by Sir EDWARD DONNER, and seconded by Professor WEISS.

POTATOS FOR AUSTRALIA. In our issue of July 22 we discussed the proclamation by the Governor-General of the Commonwealth, which appeared in the *Gazette* of March 25, 1911. Under that proclamation it was impossible for British firms to send Potatoes for seed or for food to Australia. It has now to be noted that the impossible condition contained in sub. clause C of the March proclamation has been withdrawn. The condition was that senders had to declare that the Potatoes were grown at least 20 miles from any place known, after due investigation, to be or to have been within five years infested with either the common Potato disease or the new black wart disease. The new conditions are reasonable, and will permit, in most seasons, of business being carried on. They are as follow:—The importation of Potatoes is prohibited from any country unless (1) They are accompanied by an official certificate, dated and signed by a responsible officer of a Government department of the country of origin, identifying the Potatoes, specifying the quantity, and certifying (a) that at the date of the issue of the certificate they were on inspection found free from disease caused by *Phytophthora infestans* (known as Irish Blight) and from the disease *Synchytrium endobioticum* (known as Potato canker, black scab, wart disease, or Cauliflower disease in Potatoes); (b) that they were grown in the country named; (c) that they were grown on premises known, after due investigation, not to be or to have been during the preceding 12 months infested with either of the said diseases; (d) that they were packed in the country of origin in clean new packages. (2) The bags, crates, or other packages containing the Potatoes are marked on the outside with the name of the country of origin, and with other distinguishing mark or marks. Provided that the Minister may permit Potatoes which are certified by a Quarantine Officer to be free from disease to be imported under and subject to such conditions as the Minister may think fit to impose. The last clause permits a Minister to open a very wide door. We cannot see how it is to operate unless a Commonwealth Quarantine Officer be present at the port of embarkation. No sender will ship subject to the risk of a cargo or even a parcel being condemned on arrival by the Quarantine Officer. This fresh proclamation was published in the *Commonwealth of Australia Gazette* on July 20, and applied to the whole of the Commonwealth, but since then, on September 16, the new conditions are repealed so far as Western Australia is concerned, and Western Australia goes back to the regulations of March 25, published in our issue of July 22, in so far that Potatoes after being landed are to be grown for the first year in quarantine.

OPUNTIA MISSOURIENSIS (POLYACANTHA).

ONE would not expect to meet with drought-resisting plants on the Pacific slope of British Columbia, for the annual rainfall of the district is 50 inches. *Opuntia missouriensis* (see fig. 146), however, grows in plenty in certain localities on the sea coast of Vancouver Island. The plant is hardy, and produces handsome yellow flowers in abundance, the flowering season being July and August. *Opuntia missouriensis* grows wild on sunny rocks in company with *Eriophyllum cæspitosum* and *Brodiaea grandiflora* near to the sea, where almost all other vegetation withers early in the year. If it were afforded a dry, sunny place on the rockery and covered with a sheet of glass in the winter it should succeed in Britain, as it is sometimes subjected to a few degrees of frost growing wild. R. Glendenning.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

INTERNATIONAL EXHIBITION OF 1912.—The publication of the revised scale of entrance charges to this exhibition makes possible some comment on them, and on your editorial of October 28, from the point of view of the ordinary R.H.S. Fellow. By "ordinary" is meant the subscriber of one guinea per annum, who repre-



FIG. 146.—*OPUNTIA MISSOURIENSIS*:
FLOWERS YELLOW.

sents an overwhelming majority of the entire Society. Not to occupy your space with figures, the amended scale is virtually a refusal by the directors to make any abatement to the great body of the R.H.S. for admission during the best part of the best days. And this is all that the Council of the R.H.S. has obtained for the great body of its supporters in return for a grant of £5,000, given or pledged, out of their funds. The only reply to remonstrances is that the Council has nothing to do with the exhibition, and is powerless in this matter of the entrance charges—surely a most extraordinary and indefensible position. Your plea that these high charges may be necessary for the financial success of the exhibition has no weight as regards the R.H.S. The Council could have ascertained beforehand that there would be this necessity of high charges, and it has morally, if not legally, exceeded its powers in granting a great sum to an exhibition which puts the bulk of its Fellows into an impossible or inferior position as regards admission. Similarly, your argument that the Council's grant is a donation and not a payment for tickets seems to me false. The Council can only make grants for the advancement of horticulture, and, by implication, for the advancement first and foremost of its own Fellows. But they are excluded from such advancement if they are excluded from the exhibition. In brief, such a grant to this exhibition can be justified only if it brings the fullest benefits of the exhibition within easy reach of the entire body of Fellows.

I write as a Fellow of the R.H.S., and not as one of the general public. But there must surely be something wrong about admission charges which are double what they were in 1866, although the people of small means who are interested in horticulture are tenfold, or, possibly, a hundredfold, more in number in 1911. G. H. Engleheart, F.M.H.

I note with pleasure the altered charges for admission to this exhibition, especially for professional gardeners, as a big railway journey, together with hotel expenses for a few days, and the original scale, would have made it a strain to many, no doubt besides myself, who think that an annual visit to a big show is an absolute necessity nowadays; but there is no indication as to whether all professionals are to be included in the new arrangements; that is, both business men and gentlemen's gardeners. C. H. E., Mumbles, S. Wales. [All professional gardeners are included.—EDS.]

My friend, Mr. Hemsley, in his note on this subject, in your last issue (p. 324), does not state the whole case when he says that "the exhibition of 1866 was a great financial success." It was a great success in the end, but at the end of the period originally fixed for holding the show, the financial results were most disastrous, and it was only by keeping the show open several days longer, by arrangement with the principal exhibitors, that financial success came. It was the popular shillings taken during the last few days that saved the situation, bought the Lindley Library, and put £1,000 into the coffers of the Gardeners' Royal Benevolent Institution. *Senex.*

JUDGING AT THE FRUIT SHOW (see p. 310).—*Fairplay* raises a shadowy goblin when he urges that judges will be biased in their judgments if they look over the show whilst it is in progress of arrangement. What is there to prevent a judge from turning over any card in a class in which he may be judging, before making the award, if he desired to do so? *Fairplay* must rest assured that not one who acted as a judge at the recent R.H.S. Fruit Show was in the least biased, or would be capable of using any knowledge he possessed for the purpose of making an unfair award. Not till the hall was cleared of the visitors did the judges know which class or classes they were required to examine. It is to be deplored that such distasteful and unfounded suggestions are raised by *Fairplay*, as they have no foundation. *A Judge.*

AGRICULTURAL EDUCATION.—All engaged in the work of agricultural and horticultural instruction are indebted to you for your timely article in last week's issue on agricultural education. You have stated what is well known to those who have to directly apply the instruction, after the schemes and regulations governing it have been turned out for their guidance by theorists. Nothing short of giving full control over land questions, and all the education connected therewith, to one particular board representing the practical side, will ever bring matters to that progressive stage which those interested are longing to see. Under the present system, excellent practical instructors are so hemmed in by theoretical machinery and administration that it is practically impossible in many instances for their work, however good, to come to full fruition. It is only fair to add that the Board of Agriculture, and its officers, have for a long period recognised this, and no doubt would, if permitted, have speedily remedied matters, had not the funds, which should have been theirs for the purpose, been entrusted to the inexperienced Board of Education. With full control, and the necessary funds at their disposal, it should be possible for the Board of Agriculture to establish a proper and practical system of education. With inspectors drawn from the ranks of the profession, local committees selected for their knowledge of the subject, together with men of wide practical experience, this could be done now. At present we find many students crammed full of theory, yet lacking practical knowledge, and the foundations which have been laid at considerable cost to the community, have to be broken up and relaid before any practical good results. Were trained professional men in charge of the subjects at every stage, such a condition would be impossible, as experience would rub shoulder to shoulder with experience, science would be available for practice and

practice available for science, and by this means a system of education would be evolved which would place a great wealth-producing industry in the best possible condition to meet foreign competition, adverse weather conditions, attacks of insect and fungus pests, uncongenial soils, troublesome markets, and so on. I trust your suggestions may find their way to the proper quarters, and that the outcome will be the reversal of the present policy, which cannot be conducive to the best interests of the country. *Instructor.*

SEEDLING APPLES. Mr Edward A. Bunyard's contribution relative to seedling Apples in your issue of October 21 induces me to give my experience in such matters, and, in doing so, I am, perhaps, mainly justified by the length of time the matter has been under my observation. From the advent of the Newtown Pippin in the 60's of the past century, I attempted to include this King of Apples amongst a collection of best-known sorts, but, finding myself disappointed as to the quality of the fruits during successive years, I sowed seeds of the true New York variety. I grew the least weakly-looking amongst them for several decades, but its nature was and remains "Crab"; and, not only so, but no bloom ever appeared; besides which, the tree was the dirtiest among many sorts, and suffered regularly from American blight beyond what I have ever seen elsewhere. In the end, about 10 years ago, I grafted the seedling on the British paradise stock, and possess to this day five grafted trees, one a cordon of four leads, the others being single cordons, one of which is planted against a tall paling 10 feet high, where it shows such vigour as it is capable of, but so far without any signs of flower-buds. American blight is not very troublesome here. Before I came, some three years ago, from Sidcup, Kent, to live in this pleasant northern town with the entire contents of my southern garden transferred, there was on a single occasion one single bunch of blossom on one of the grafted single cordons, but, unfortunately, no fruit set. There is no change from the smallness of the foliage and spines, and, as from the very first, the wood is thin and tough, with numerous thin laterals and spines. The opportunity is favourable to mention a great failure of cespicious hundreds of trees in my garden this year, the effect of the drought in the earlier summer months. But a rather curious exception is that the American varieties, Benoni, Mother, and Wealthy, have exceeded all my previous experience, both as to quality and quantity. Our British Duke of Devonshire and a few others are equally distinguished. The natural soil here is pure sea sand, extending to several miles from high-water mark at the coast, narrow stretches of a peaty, boggy nature excepted, the result being that success in gardening at this seaside place depends upon the soil brought by railways, a matter which renders gardening a serious expense. *H. H. Twicken, Beckenham, South-east, Kent.*

CELERY DISEASE.—In 1907, a few years ago I was much troubled with disease in my Celery plants, and was at a loss to account for its appearance. In October, 1907, I sent some freshly-dug plants to the authorities at the University College, Reading, and the disease was named *Phyllosticta Apii*. How far this disease differs from *Ceriospora Apii* mentioned by your correspondent I cannot say. In the reply that I received from Reading, a probable cause was given—the use of pigs' dung, inasmuch as the pigs might have eaten some refuse or another containing spores of the disease, which would pass through the bodies of the animals without destroying their powers of germinating. I was advised to collect and burn all the affected leaves and not to grow Celery on the same ground for a few years. All the manure used in the garden here contains a considerable proportion of pigs' dung. In 1907, when the attack was worst, the manure was rather fresh when put into the bottom of the trenches. In the summer of 1908 I planted Celery in ground which had not been cropped with this vegetable for more than 20 years, if ever before, and more than half a mile away from where the crop was grown in 1907. The manure was the same, clean and old, including pigs' dung—only more decayed, but only about one-third the quantity previously employed was used. In that year no trace of the disease was noticed, nor in 1909, in which year the Celery

was grown in entirely fresh ground, with similar manure and of the same quantity as in 1908. Last year the Celery was planted a short distance from the ground that bore the 1908 crop, similar manure and the same quantity being used. All went well until the middle of September, when traces of the disease showed themselves. I at once sprayed the plants with Bordeaux mixture, and continued spraying once a fortnight until the frost set in, with good results, for the disease did not spread, and there was no loss of the crop. This season the Celery is growing in the same ground selected in 1907, with similar manure, decayed, and in less quantity. I cannot say if any trace of disease would have shown itself, for I did not wait until it appeared, but commenced spraying with the Bordeaux mixture about the second week in August, and continued spraying at intervals until 10 days ago. The plants are clean and healthy, with no trace whatever of the disease. In 1907, when the disease was so bad here, I gave surplus plants to a cottager for his garden; he planted them in ground without manure, and there was no trace of disease in his garden. The plants were pricked out in the same cold pit as those which I planted, and which were so badly diseased. My experience is that the soil or manure is the source of infection, and not the seed. During the years 1906-07-08, the disease was very bad in several gardens in this district, but this season I have heard no complaints, and only in one garden has spraying been practised. The disease showed itself here in the form of irregularly-shaped, brown spots on the leaves; at the same time, traces could be noticed in the stems, and also in the roots. It spreads very quickly all over the bed, and eventually the plants rot. We grow about 2,250 plants each season, and in 1907 more than 1,500 were unfit for use. *J. Jacques, Brynston Gardens, Blandford.*

—This disease is, unhappily, not confined to Celery, but has been found to attack plants affected by it, although Celery has come under my notice in many places, but several diseased leaves have been sent me from time to time. It may interest Mr. Calthorpe to learn that the Board of Agriculture has issued a leaflet descriptive of the disease and its treatment. But for any treatment to be effective, it needs to be applied in the earliest stages of the disease. The Board of Agriculture recommend spraying with the Bordeaux mixture three times at least, at intervals of a week. All the affected leaves should be gathered and burnt. The spraying of Celery with a poisonous solution is not desirable, if it is possible to avoid it; but if the fungus appears, it must be done. *H. D.*

HOGG'S FRUIT MANUAL.—I agree with *A. D.*, on the latter page, as to striking out varieties of no general merit in any new edition published. When sending you an occasional notice, I generally put my thoughts on paper twice, if not thrice, before posting. Even then, they require distilling again by you. In my first notes I put down "expurgated edition, with the addition of new varieties," but struck it out and tried again. I find now that the last edition of the *Manual* can be purchased for £1 10s., but I fear that this is a prohibitive price for gardeners generally. It is to me, anyhow. *Yorkshire, Yorkshire.*

—The question of a revision or a new edition of *The Fruit Manual* needs no excuse for its discussion at the present moment. Your correspondent *A. D.* advises a "supplement," whilst in other quarters a new edition is recommended. It will be perhaps well, however, to consider first if the present form of this invaluable work is the best that can be devised before taking steps to supplement or revise it. In considering this it is necessary to realise that there are two kinds of readers asking for a new work (1) the amateur fruit-grower, the nurseryman who does not make a speciality of fruit, and the gardener; and (2) the fruit expert. Those in the first class require a concise work to which they can refer for synonyms and short descriptions of fruit, season, general habit and requirements of the different varieties. But the expert desires full and minute descriptions of fruit, leaves, flower, wood and growth, with such historical information as can be established. In the opinion of the writer the work of Dr. Hogg falls between these two classes. The descriptions, being largely limited to fruit, are not

full enough for the expert, and rather too technical for the amateur gardener. The information given is not sufficiently detailed to determine with absolute certainty the identity of many varieties, and it is not to be expected that descriptions of fruit alone can ever suffice. The botanist requires for his determinations not only fruits, but flowers, leaves, stem; in fact, the whole plant, and I venture to say that the minute differences between varieties of fruits are at any rate as difficult to determine as those of botanical species, on which the systematist exercises his skill. As an example of the two different works I would suggest the *Guide Pratique à l'amateur des Fruits* by Thomas, and the masterly and exhaustive works of Mas, published as *Le Verger*, and the continuation of the same as *Pomologie Générale*. The former is an excellent example of what judicious compression and terse description may bring together in the volume. In the space of an octavo volume of 385 pages, over 3,000 varieties are described, and some 17,000 synonyms given. In *Le Verger* both sides of a page are given to minute description of one variety, and it seems for the expert a work of reference which, for detail and accuracy, has not been surpassed. *Edward A. Bunyard.*

SCOTLAND.

PRESENTATION TO A SCOTTISH GARDENER.

MR. ALEXANDER BAIN, gardener at Ballater, who is leaving for New Zealand, has been presented by his numerous friends with a purse of sovereigns, and Mrs. Bain, with a gold brooch. The presentation was made by Mr. H. Anderson, of Oakhall, on behalf of the subscribers. The members of the local lodges of Freemasons have also made presentations to Mr. Bain for services rendered to the craft.

THE CALTON HILL IMPROVEMENT.

The scheme for the improvement of the Calton Hill, Edinburgh, referred to in our issue of October 28, is not meeting with general acceptance, as the estimated cost turns out to be £100,000.

SOCIETIES.

ROYAL HORTICULTURAL.

NOVEMBER 7.—There was only a moderate exhibition at the fortnightly meeting, held on Tuesday last. Some of the exhibits were exceptionally good, notably the pot Chrysanthemums and winter-flowering Begonias, shown by Messrs. JAMES VEITCH & SONS, Nerines from Mr. FRANK LILLEY'S Jersey Nursery, Begonias and Ferns shown by Messrs. H. B. MAY & SONS, and several exhibits of Chrysanthemums. The FRUIT COMMITTEE awarded Medals, with a gold medal and granted eight Awards of Merit to novelties exhibited by various raisers. Mr. G. F. MOORE was awarded a Lindley Medal for a choice collection of Orchids, and the ORCHID COMMITTEE recommended two First-class Certificates, two Awards of Merit, and one Certificate of Appreciation. No award of any kind was made by the FRUIT AND VEGETABLE COMMITTEE. At the afternoon meeting of the Fellows Mr. James Hudson gave a lecture on "The Culture of the Fig in Pots" (see p. 342).

Floral Committee.

Present: Messrs. W. Marshall and Henry B. May (Chairmen); and Messrs. Chas. Dixon, W. P. Thomson, C. Bick, W. J. James, J. F. McLeod, W. Howe, Jno. Green, W. J. Bean, G. Reuthe, C. R. Fielder, J. Jennings, R. Hooper Pearson, H. J. Cutbush, Jno. Dickson, J. T. Bennett-Poe, Charles E. Shea, Chas. E. Peeson, H. E. Jenkins, George Paul, R. C. Reginald Nevill, George Gordon, and James Hudson.

MESSRS. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, filled a large table with Begonias raised from tuberous varieties crossed with *B. socotrana*. On this occasion, Messrs. VEITCH showed three seedlings each exhibiting a distinct break in colour, and all three were very beautiful. Amongst the older sorts none were more beautiful

than, Elatior, of rose-carmine colour and with a centre like a small Camellia. Mrs. Heal, Julius (double pink flowers), and Agatha were also included in the collection. Messrs. VEITCH were also the exhibitors of a group of Chrysanthemums in pots, the display forming the largest group in the hall. They were all of the decorative type, and magnificently grown. The finest were Yellow Cap (golden yellow), Red Cap (rosy-crimson, tipped with yellow), White Cap, Kathleen Thompson (crimson, tipped with gold), Greening's Caprice (rosy-mauve), John Shrimpton (rich crimson), Daphne (yellow, "shot" with terra-cotta), Ladysmith (rose-pink), Mary Richardson (bronze), and Countess of Edmont. (Gold Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, showed a very bright exhibit of Carnations of the perpetual-blooming type. Such popular sorts as Rose Enchantress, Winsor, Pink Delight, Beacon, Perfection, and Lady Alington were arranged in large sheaves with greenery and a group of Ferns. (Silver Flora Medal.)

Messrs. H. B. MAX & SONS, Edmonton, showed Begonias of the Gloire de Lorraine type, including Agatha and Mrs. Leopold de Rothschild, both pink varieties, and Turnford Hall, white, with a trace of rose. The plants were excellent specimens, and arranged in a setting of Ferns. (Silver Flora Medal.)

Messrs. W. CURRISH & SON, Highgate, showed miscellaneous greenhouse plants, including well-grown specimens of Erica gracilis, E. nivalis, the dwarf Polyantha Roses Jessie, Mrs. W. H. Cutbush, and Orleans; Dracena Brantii variegata and other kinds, Oranges in fruit, tiny plants of Myrtus communis, and, in the centre, a large batch of Begonias, including Ensigu, Julius, Mrs. Heal, Elatior, Emily Clibran, and Winter Cheer. (Silver Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, Surrey, filled a table with small plants in pots of berried shrubs, all adaptable for indoor decoration and for furnishing window-boxes. Varieties of Pernettya mucronata, Skimmia of kinds, the best being Skimmia japonica Formanii, and Aucuba vera, were all well fruited. Interspersed in the groups were ornamental Ivies, and an edging was made with Euonymus latifolius albus. (Bronze Flora Medal.)

Mr. FRANK LILLEY, St. Peter's, Guernsey, showed varieties of single Chrysanthemums, all fresh and pretty blooms; also some splendid Nerines, prominence being given to the large, rose-pink N. Bowdenii. There were also varieties of N. Fothergillii major and N. Mansellii, one of the choicest being N. M. Salmon Queen.

Mr. VINCENT SLADE, Staple Grove Nurseries, Taunton, showed Zonal-leaved Pelargoniums, the best being New York (scarlet, with a white eye), Corona (rosy-pink), Ascot (salmon), Mentmore (bright rose), Helen Countess of Radnor (cerise), George Coates (salmon-red), and a new variety named Mrs. V. Slade (with rose-pink suffusion on a white ground).

Mr. GEO. REUTHE, Keston, Kent, showed a few Alpines in pots and numerous hybrid Nerines, mostly of N. Fothergillii major. Other parents were N. pudica, N. Bowdenii, and N. flexuosa. The largest-flowered hybrid, a derivative of N. Fothergillii major and N. Bowdenii, was named Harold.

Messrs. W. WELLS & Co., Merstham, Surrey, filled a table with Chrysanthemums of all types, the blooms being exceedingly fresh and bright. Many were seedlings, and of these three received Awards of Merit. Other new sorts that were specially good were Polly Duncan (a yellow single), White Lady (a single with a yellow "anemone" eye), Black Prince (dark crimson), and Snowflake (with stiff, white, pointed florets, set off by a well-formed yellow disc). The white Japanese Mrs. Gilbert Drabble promises to furnish exhibitors with one of the finest white varieties for the show board; it was awarded the Silver-gilt Medal at the recent Paris show offered for the best bloom in the exhibition. (Silver Flora Medal.)

Messrs. CARTER, PAGE & Co., 52 and 53, London Wall, London, showed a large assortment of Chrysanthemums, principally singles. There were several cases of the white Incurved Mrs. W. Roots, Money-maker (a very free-blooming white Japanese variety), W. Beadle (crimson), the delightful Pompon Elsie Dordan, Rayonante (with narrow, pink florets), and, in the centre, pot plants of the single Altrincham Yellow. (Silver Banksian Medal.)

A corner group of Chrysanthemums was exhibited by H. B. BRANDT, Esq., Capenor, Nutfield, Surrey (gr. Mr. T. Heron). Several bold cespuges were filled with large Japanese blooms, giving the group an imposing appearance. In the foreground were mainly singles and decorative varieties. The flowers were set off by autumn-tinted foliage, Codiums (Crotons), and Ferns. (Silver Flora Medal.)

Messrs. J. FREED & SON, West Norwood, exhibited a group of Chrysanthemums, arranging them very pleasingly, with the specimen blooms of Japanese sorts as a background against Palms. In the centre was a stand of the delightful white single Mensa. Other excellent singles were Edith Pagram (the white florets stained with purple and set off by a fine yellow eye), Queenie Jessop (yellow), and Roupell Beauty (crimson). (Silver Banksian Medal.)

Messrs. G. C. PRICE & A. B. FIFE, Grove Park Nursery, Lee, showed varieties of Chrysanthemums interspersed with autumn-tinted foliage. The yellow R. F. Felton was very good, also Rayonante, H. W. Thorp (a white Incurved sort), and the large Mrs. G. C. Kelly (the magenta florets showing a silvery reverse).

Mr. G. J. TURBS, New Eltham, Kent, showed a sport from Chrysanthemum Lizzie Adcock, a well-known yellow market sort, the novelty having light-bronze flowers.

A. KINGSMILL, Esq., The Holt, Harrow Weald, showed large sprays of Pernettya mucronata with clusters of berries, and trails of Vitis heterophylla in full fruit.

A noteworthy exhibit of floral paintings was shown by Miss M. WALTERS ANSON, The Studio, 5, Broadway, Streatham. The pictures were principally varieties of Caladium, raised by Mr. Richard Hoffman, Lower House, Streatham, and were most faithfully executed. (Silver Banksian Medal.)

Floral paintings were also shown by FRANK GALSORTHY, Esq., Green Lane Farm, Chertsey, Surrey.

AWARDS OF MERIT

were recommended for the following novelties:—

Carnation Baroness de Brénne.—This is still another pink-coloured perpetual-flowering or tree Carnation. It has exceptional qualities in its pleasing tint and good form. Shown by Messrs. STUART LOW & Co.

Begonia Acquisition, Exquisite, and Her Majesty.—Messrs. JAMES VEITCH & SONS, LTD., Royal Exotic Nurseries, Chelsea, exhibited on this occasion a very fine display of their winter-flowering Begonias, obtained from crossing Begonia scottrana with ordinary tuberous-rooted varieties. In addition to the better-known sorts, three new varieties were shown, and each gained an Award of Merit. The first one, "Acquisition," has flowers of moderate size, a beautiful pink in colour, with paler centre. Its floriferousness and robust growth were remarkable features of this brilliant novelty. "Exquisite" may be recommended from the fact that the flowers are larger than those of any Begonia of this type yet raised, whilst it is certainly more vigorous in growth. The colour is rich rose, with a lighter centre to the flower. "Her Majesty" is quite distinct in colouring, being a yellowish-salmon, with rosy margins to the petals. All three novelties are well worthy the attention of the cultivator.

Chrysanthemum Golden Cap.—This is a yellow, decorative variety shown by Messrs. JAS. VEITCH & SONS, LTD., and Messrs. W. WELLS & Co. The dwarf plants—some 18 inches to 2 feet high—showed the variety to be specially valuable from the decorative point of view.

C. Golden King.—This new Incurved variety will rank amongst the finest exhibition flowers in this section. The blooms are very large and of good form; the florets incurve well, and the colour is a rich, golden yellow. Shown by Messrs. W. WELLS & Co.

C. Mornay Walker.—This sport from the well-known decorative variety Freda Bedford is of a coppery-red tint. Shown by Messrs. W. WELLS & Co.

C. Percy Arnold.—This is a beautiful single flower of pink colour with white centre. From W. G. RIDGEN, Esq., Englefield Green.

Orchid Committee.

Present: J. Garney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Harry J. Veitch, George Wilson, R. G. Thwaites, W. Thompson, G. F. Moore, T. Armstrong, A. A. McBean, W. Cobb, J. Charlesworth, J. E. Shill, J. Cypher, W. H. Hatcher, H. G. Alexander, A. Dye, C. H. Curtis, J. Wilson Potter, W. Bolton, R. B. White, J. S. Moss, de B. Crawshaw, C. Cookson, and C. J. Lucas.

G. F. MOORE, Esq., Bourton-on-the-Water (gr. Mr. Page), was awarded a Lindley Medal for a very fine group, in which the prevailing feature was made by about 60 very fine specimens of Dendrobium Phalaenopsis Schröderianum, most of which had been in the collection for 18 years. All were fine plants, varying considerably in tint, the darkest being the variety rubescens. The pure white forms were represented by two good examples of the variety hololeuca. D. P. Louisa Deane had white flowers, with a pink veining on the lip. A good selection of hybrids of Cypripedium Fairriarum, the white C. Balthamii, C. Elatior, C. Leeanum varieties, and Lælia pumila were also included.

E. R. ASHTON, Esq., Broadlands, Camden Park, Tunbridge Wells (gr. Mr. A. Young), was awarded a Silver Flora Medal for a very good group of well-grown specimens, a remarkable plant being his specimen of Cattleya Phrygia (Portia × Enid), a very fine flower of rose-purple tint, with a well-expanded dark labellum. The plant bore six flowers on a spike. Hybrids of Lælia Perrinii included several good specimens of L.-C. Lady Rothschild and L.-C. Statteriana. Cattleya Luege bore a fine spike of large flowers, and the forms of C. Fabia included a very good white variety. Lælia Cattleya Russelliana (L.-C. Wellsiana × C. Dowiana aurea) was very fine. The white Cattleya Dusseldorf Endine bore a flower nearly 6 inches across, and Brasso-Cattleya Mrs. J. Leemann had fine yellow and rose-coloured flowers.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal for a very fine group of Cypripediums, among which were C. Gaston Butel, C. Baron Schroder, C. Priam, forms of C. Thalia, the dark-coloured C. Titus superbum, C. Niobe "Westonbirt" variety, good forms of C. insignis and C. Leeanum, and many others. Phalaenopsis orchidophyllum, the clear white Oncidium ornithorrhynchum album, a batch of Dendrobium formosum giganteum, and D. Phalaenopsis, several hybrid Odontoglossums, &c.

Messrs. SANDER & SONS, St. Albans, secured a Silver Flora Medal for a good group, in which hybrids and rare species were well represented. There was a good show of Cattleya Fabia and C. Fabia alba, C. Mrs. Pitt, and other hybrid Cattleyas, of which C. spectabile (bicolor × Empress Frederick) was an exceptionally fine and brightly-coloured flower. Among species, the best was the charming white Dendrobium Sandera, and Gongora cassidea, Cypripedium Schomburgkii, and other rare plants were also noted.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for a fine selection of Orchids, in which the varieties of Cattleya labiata, including the white-petalled C. labiata Penelope, were effectively combined with C. Fabia and other hybrids, Brasso-Cattleyas, &c. In the centre were several fine forms of Vanda corulca, some brightly-coloured Odontodas and finely-spotted Odontoglossums, while among the species was a good specimen of Zygopetalum Sanderianum, of the Z. Maxillare section, and differing from that figured in *Gartenflora*, 1888, t. 1287, in having more brown markings on the green sepals and petals, and a white instead of a light-blue lip; also Pescatorea Roelzii, a pretty Mormodes allied to M. Cogniauxii, and Stanhopea convoluta.

Messrs. HASSALL & Co., Southgate, were awarded a Silver Banksian Medal for an effective group of varieties of Cattleya labiata, the labellums being very broad and richly coloured. With them were several C. Fabia, C. Fabia alba, C. Minucia (very finely flowered), and a selection of Cypripediums.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Banksian Medal for a good group of Cattleya labiata. C. Fabia,

C. *Armstrongiae*, Brasso-Cattleyas, a good selection of *Oncidium*s, including a very fine dark form of *O. crispum*, *Cynoches chlorochilum*, *Rediguesia fragrans*, and *Oncidium bicallosum*.

Messrs. J. & A. A. McBEAN, Cooksbridge, were awarded a Silver Bankian Medal for a group in which were some exceptionally fine hybrids. *Lælio-Cattleya Arachne* had very fine flowers of an uncommon tint, and the still more beautiful *C. Venus lutescens* secured an Award of Merit (see "Awards"). Others noted were a richly-coloured *Odontodia Charlesworthii*, of the Cooksbridge strain, a pure white *Dendrobium Phalanopsis*, *Cattleya Suavior alba*, *Cypripedium insigne Sanderae*, with 15 flowers, and *Cattleya Mantinii*, with three spikes.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, were awarded a Bronze Medal for a group of well-grown *Cattleya Fabia*, a very good selection of *Cypripedium*s, including the stately *C. Dreadnought*, *C. Dallas superbum*, *C. Elatior*, *C. Thalia* Mrs. Francis Wellesley, *C. insigne Bolinhoffianum*, and other forms of *C. in-*

J. GURNEY FOWLER, Esq., showed a very fine spike of *Cymbidium Tracyanum*, and a new bigeneric hybrid (see Awards).

Mr. G. W. MILLER, Clarkson Nurseries, Wisbech, showed hybrid *Cypripedium*s, including *C. Ossultonii*, *C. Sallieri*, *C. Clarksoniae* (*Actæus* \times *insigne* Laura Kimball), like the best dark form of *C. insigne Sanderae*, and *C. Curtisii*.

Mrs. N. C. COOKSON, Oakwood, Wylam, showed the pure white *Calanthe Harrisii*, the pretty *Cypripedium* A. J. H. Smith (*Euryades* \times *niveum*), and others (see Awards).

F. DUCANE GODMAN, Esq., Horsham, sent *Sophræ-Lælio-Cattleya Alice* (*S.-L. heatonense* \times *C. Mrs. Pitt*), a pretty rose-purple flower.

The Rev. J. C. B. FLETCHER, Mundham Vicarage, Chichester, sent a spike of a clear-white form of *Bulbophyllum Medusæ*, *Catasetum Gnomus*, and *Epidendrum*.

J. GURNEY WILSON, Esq., Glenthorne, Haywards Heath, sent an interesting form of *Cattleya labiata*, showing fixed peloria.

E. H. PAVLSON, Esq., Birtsmore, Twyford, sent

purple. The broad, deflected petals are densely spotted with dark purple.

Cattleya Veitchii (Lr.) \times *Thalassia aurea*, from Messrs. J. & A. A. McBEAN, Cooksbridge.—A noble flower like an expansion of *C. Iris*, with sepals and petals pale lemon yellow, with slightly darker veining. Lip broad, dark rose, with yellow markings on the base.

CERTIFICATE OF APPRECIATION.

Odontodia var. *Barbieri* (Lr.) \times *Cyclopogon* \times *Oncidium* *Barbieri*, from J. & A. McBEAN, Cooksbridge, Esq. (gr. Mr. J. Davis). A very pretty and interesting hybrid with sepals and petals having a yellowish ground and cross bars of chocolate red. The lip is showy, yellow, lighter in front, and marked with chestnut red.

Fruit and Vegetable Committee.

Present: G. BUNYARD, Esq. (in the Chair); and Messrs. J. Cheal, W. J. Jeffries, W. Bates, A. Dean, E. Beckett, J. Davis, J. Willard, G. Reynolds, G. Wythes, and J. Harrison.

Numerous seedling Apples were presented for awards, including four handsome varieties shown by Lady THORNYCROFT, Bembridge, Isle of Wight. These were named respectively Sir John Thornycroft, Lady Thornycroft, Blanche, and Steyne's Seedling. The first-named variety was a round, handsome fruit with flesh of good flavour. The committee expressed a wish to see fruits at the next meeting accompanied by a description of the growth of the tree. R. W. THORNE, Esq., Teddington, showed fine fruits of Uvedale's St. Germain, Pears, and Mr. R. HARTLAND, Cork, Ireland, exhibited bright-red fruits of Ballinora Pippin and highly-coloured fruits of Cox's Orange Pippin. W. J. VOSS, Esq., Rayleigh, Essex, staged a collection of 16 baskets of Apples generally of medium size. The varieties included Emperor Alexander, Waltham Abbey Seedling, Lane's Prince Albert, New Hawthornden, Mère de Ménage, The Queen, Duke of Devonshire, and Worcester Pearmain; Pear Bonne d'Échelle, and Quince.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, exhibited 20 baskets and dishes of Apples, including Lane's Prince Albert, Lord Derby, Royal Jubilee, Newton Wonder, Mère de Ménage, Allington Pippin, King of the Pippins, Cox's Orange Pippin and Parquet.

THE LECTURE.

Sir Albert Kaye Rollet presided at the afternoon meeting of the Fellows, when a lecture on "The Culture of the Fig in Pots" was given by Mr. Jas. Hudson, V.M.H. In order to illustrate the lecture, several examples of pot-grown Figs in a fruiting condition were shown from the collection at Gunnersbury House gardens. These were chiefly plants struck from eyes or cuttings in January last, and comprised such varieties as Negro Largo, D'Agen, White Ischia, Violette de Bordeaux, Violette Sepor, Brown Turkey, and Bourjassotte Grise. The object of the lecturer in showing the specimens was to demonstrate the rapidity with which the Fig may be grown, and to show how freely these varieties will bear fruit in 10 months from the time they are propagated. The plants were in the best condition of health, and should continue to yield fruit for some weeks to come. One tree was exhibited to show how long a Fig tree may be grown in a pot in a healthy, fruiting condition. It was about 12 years old, and carried several fruits, although the greater part of the crop had been gathered. It was trained in a columnar manner, and tied to one stake only. The variety was Negro Largo, one of the best of all late Figs, and was growing in a pot 11 inches in diameter, but with no superfluous growth whatever. The lecturer advocated the culture of Figs in pots, both for early and late fruiting. For very early cropping, either St. John or Pingo de Mel was recommended in preference to Brown Turkey, which is suitable for successful cropping. For late and extra late forcing, Negro Largo, Bourjassotte Grise, White Ischia, and D'Agen were named as the best varieties for the purpose. Comparatively small pots were advocated, since they are easy to move and better for storing when the plants are at rest. The earliest plants, when started into growth, are treated like vines, but in the case of late kinds, growth will have already commenced when room can be found



FIG. 147.—SINGLE CHRYSANTHEMUM MRS. MARGARET WALKER; COLOUR GOLDEN-BRONZE.

Awarded the National Chrysanthemum Society's Certificate of Merit on the 1st inst. (see p. 327 ante).

signe, &c. Interesting species were *Dendrobium Coloryne*, *Cirrhopetalum appendiculatum*, and *Bulbophyllum Godseffianum*.

W. R. LEE, Esq., Plumpton Hall, Heywood (gr. Mr. Woodhams), showed the very fine *Cypripedium King George* in grand condition and *C. Hannibal* finely grown.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed *Cattleya Olaf* (*labiata alba* \times *Parthenia Prince of Wales*), a good flower with white sepals and petals, the crimped lip having rose markings in front of the yellow disc.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a group in which were *Cattleya labiata* W. R. Lee, a fine white form with pink on the lip; varieties of *Cypripedium Thalia*, *C. Germaine Oprix*, *C. Gaston Bulkei*, *Lælio-Cattleya Decia alba*, and *Cymbidium erythrostylum*.

His Grace the Duke of DEVONSHIRE, Chatsworth (gr. Mr. Jennings), sent an example of the fine old red *Renanthera coccinea*, with a large, five-branched spike, for which the Committee passed a Vote of Thanks.

Odontodia Dora with scarlet flowers, and a white *Cypripedium Venus*.

C. J. LUCAS, Esq., Warnham Court, showed a nearly white form of *Brasso-Cattleya Digbyano-Mendellii*.

AWARDS.

FIRST CLASS CERTIFICATES.

Cattleya Ashland alba (*Harrisoniana* \times *Barbieri*), from Messrs. SANDER & SONS. A very fine, white flower, with well-expanded lip, having a yellow disc.

Calanthe Cooksoniae, from Mrs. N. C. COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman). The largest and purest white *Calanthe*. The *C. Harrisii* which was one of the parents was also shown, but the new hybrid is by far the better.

AWARDS OF MERIT.

Cypripedium Sibyl superbum (*Franciscæ* \times *Fairveanum*, from Mrs. COOKSON.—A fine, bold flower, the large, white dorsal sepal tinged with rose and striped from the green base with dark

Mr. LAMBERT, Chichester, secured the two leading awards for 12 and 8 specimen Chrysanthemums respectively, with medium-sized plants of popular sorts.

FRUIT was well shown. W. H. MYERS, Esq., Swannmore Park, Bishop's Waltham (gr. Mr. G. Ellwood), secured the leading award for two bunches of black Grapes with Gros Maroc, in fine condition, and he also showed the best six dishes of Apples.

Captain DALGETY won the 1st prize for white Grapes, showing Muscat of Alexandria, with rich, amber-coloured berries.

Mr. C. H. HOUSE, Privett, Gosport, excelled in the class for six dishes of Pears.

Mr. MYERS beat all other competitors in the four vegetable classes in which he competed. The BARNHAM NURSERY Co. were awarded a Gold Medal for a superb collection of Apples.

A Silver Medal was awarded to Messrs. W. WELLS & Co., Merstham, for a collection of Chrysanthemums representing several sections.

COVENTRY CHRYSANTHEMUM.

NOVEMBER 2, 3, 4.—The seventeenth annual exhibition of this society was held at the Territorial Drill Hall, and though not so strongly representative numerically in respect to Chrysanthemums, due to the unfavourable season, the show was a most successful one. Excellent groups of Chrysanthemums were exhibited by Mr. W. FINCH and Mrs. W. I. ILIFFE, which gained 1st and 2nd prizes. The grouping of the 1st prize exhibit was excellent; in the one which was placed 2nd there were some superior blooms, but the arrangement was not so well carried out as in Mr. FINCH's collection. Mr. HUGH ROTTERHAM (gr. Mr. G. Griffin) and Councillor C. VERNON PUGH (gr. Mr. T. Kemp) staged two exceedingly attractive miscellaneous groups not for competition. The entries of cut blooms in the classes for Japanese blooms were very sparse indeed, but some good specimens were exhibited, and in this department Mr. A. HOYLE was successful. The 1st prize for a group of Chrysanthemums was awarded to Mr. J. P. WARD, whilst in the classes devoted to amateurs and cottagers only Mr. W. WETTON gained two 1st prizes for Japanese and incurred varieties respectively. As usual at these exhibitions, fruit was a strong feature. Messrs. G. BUNYARD & Co., Maidstone, exhibited more than 100 dishes of Apples and Pears, making a special feature of Uvedale's St. Germain Pear, some of the specimens weighing more than two pounds. The EXORS. of THOS. WEBB, Coventry, were awarded a Gold Medal for a capital selection of fruit and vegetables.

CHELTEMHAM FRUIT AND CHRYSANTHEMUM.

NOVEMBER 2, 3.—In almost every department the Cheltenham Root, Fruit, Chrysanthemum, and Winter Flower Society's show, which was held at the local Town Hall on these dates, displayed a distinct advance upon last year's exhibition. The entries on the whole were about the same, although the variety was greater.

The Chrysanthemum has always been, and probably will remain to the end, the great feature of the show, which is always briefly intitled the "Chrysanthemum Show," although year by year other features have come to share a larger proportion of the honours than was formerly the case.

Mr. C. J. MAYO, Ellenville, Naunton Lane, won the silver cup presented by the Mayor and Corporation for the best collection of six distinct varieties of Japanese Chrysanthemums, and Mrs. ST. CLAIR FORD (gr. Mr. F. Payne) was awarded Alderman Skillicome's silver cup offered for the best plant in the show. Other principal prize-winners were Mr. F. MAY, Mr. H. ANDREWS (gr. Mr. J. R. Tooley), Mr. C. F. CLIFF, J. W. BARRETT & SON, Victoria Nurseries, Mr. Q. W. RESTALL, Mr. J. HORLICK, Cowley Manor (gr. Mr. J. Maddock), Mrs. BRANLEY, Southwick Park (gr. Mr. W. Parker), Mr. E. ADLARD (gr. Mr. E. C. Young), Mr. H. J. TILLEY, Halls Road Gardens, Mrs. GREAVES, The Cottage, Wormington, and Miss A. RECKLESS, Sunnyfield, Hatherley.

In the classes for Carnations Mr. J. HORLICK, of Cowley Manor (who won two 1st and one 2nd prizes), and Mr. H. ANDREWS, of Toddington Manor (gr. Mr. J. N. Tooley) were the leading exhibitors. Begonia Gloire de Lorraine was shown splendidly, but Primulas appeared to be not so good as usual.

Exhibits of Grapes were not equal to the average quality, but hardy fruits showed remarkable colour. Apples were much better than Pears, being greater in number, firmer, larger, and more even in quality.

The chief prize-winners for fruit were: (Apples) Sir PERCY CUNYNGHAME, Mrs. ROBINSON, and Messrs. W. S. R. COX, T. SPENCER, J. BOUL, R. WILSON, H. WOODMAN, JAS. HERRICK, G. W. RESTALL, H. NEWMAN, and E. ADLARD; (Pears) Mrs. ROBINSON, Mrs. ARLEY, and Messrs. J. HITCH & SONS, C. M. FLETCHER, H. ANDREWS, T. SPENCER, H. G. BENNETT, and H. WOODMAN; (Grapes) Messrs. H. ANDREWS and J. PEARCE.

In the large hall honorary exhibitors made a grand display. Messrs. J. CYPHER & SONS, Cheltenham, showed choice Cichids, also stove and greenhouse plants; Messrs. YOUNG & Co., Hatherley, had an extremely fine collection of perpetual-flowering Carnations. Mr. COVILLE exhibited a representative collection of greenhouse plants; The KING'S ACRES NURSERIES, Hereford, showed probably the largest and finest lot of hardy fruit ever seen in the county, whilst Mr. WHITEHEAD exhibited pot Carnations and Chrysanthemums.

TORQUAY DISTRICT GARDENERS.

NOVEMBER 2, 3.—The 10th annual Chrysanthemum show of this society was held on this date, and was a great success, the entries being above the average and the exhibits of very high quality. The competition was keen in many of the classes. The class for groups of single Chrysanthemums was excellent, the National Society's Certificate and 1st prize being won by Mrs. LYON, with a very perfect stand. The 1st prize for a group of Chrysanthemums in the form of a semi-circle was awarded to Mrs. LYON, with a collection of very choice flowers. The trained Chrysanthemums were very fine, the Certificate of Merit and the 1st prize being won by Mrs. LYON, with plants about 5 ft. in diameter. The same lady also won the 1st prize in the class for single specimen plants. The cut blooms were hardly up to the standard of former years. The 1st prize for 24 Japanese blooms was won by Dr. T. G. SKARDON, who also won the 1st prize in the class for 12 Japanese blooms. For six flowering plants for the table and for six Ferns, Col. CARY won the 1st prizes, whilst for six foliage plants the 1st prize was awarded to Dr. QUICK. Capt. PHILLIPOTS showed the best specimens of winter-flowering Begonias, and Dr. QUICK the best plants of Solanum capsicastrum.

In the class for artisans and cottagers, the silver cup offered for six Chrysanthemum blooms of any variety was won by Mr. T. GUEST, who also won the National Chrysanthemum Society's silver medal for the best bloom in the show, with a magnificent example of the pure white, Miss A. T. Miller. There were pretty table decorations and several well-arranged vases of cut Chrysanthemums, as well as artistic baskets of berry-bearing plants. The exhibits of fruit were of a very high order of merit, the chief 1st prizes being won by Col. CARY, while other winners were Dr. QUICK, Dr. LEON, Mrs. TOTTEHAM, and Capt. PHILLIPOTS. In the vegetable classes the chief prizes were taken by Mr. P. P. ALEXANDER. In the classes open only to residents in the borough, all the 1st prizes except one for cut blooms were won by Mrs. LYON, the remaining 1st prize being won by Mrs. Tottenham. There were also classes for vases of cut Chrysanthemums. Many special prizes were offered for various vegetables, the majority of which were won by Mr. P. P. ALEXANDER and Col. CARY.

The nurserymen's exhibits added much to the attractions of the show. The DEVON ROSEY, Torquay, staged Lilium longiflorum, Bouvardias, Nerine, Bowdewia, Cyclamen, Crotons, Solanum capsicastrum, Eupatorium micranthum, Eralias (pink and white), Pandanus Veitchii, Acalypha hispida, fine Palms, Ferns, and a representative collection of Chrysanthemums. The same firm exhibited a collection of Apples and Pears in 80 varieties.

Messrs. ROBERT VETCH & SONS, Exeter, had an interesting stand, in which were many varieties of winter-flowering Carnations. Fruits of Thodiantia dubia were shown, as well as Veronica Veitchii, Acacia Baileyana, Cedrus atlantica glauca, Abies pungenis glauca, Correa cardinalis, C. magnifica, Metrosideros floribunda, Ceanothus Gloire de Versailles, &c.

Mr. W. B. SMALE, Torquay, showed Zonal Pelargoniums, variegated Phloxium tenax, Anthuriums, Solanums, Begonias, Ericas, Bouvardias, Palms, and Ferns.

Mr. H. MAYNE, Torquay, exhibited Asparagus plumosus, Carnations, Ericas, Lilies, and Chrysanthemums.

Messrs. BURRIDGE & SONS, Torquay, showed Hydrangeas, Cocos Weddelliana, Lilies of the Valley, Ardisias, and other plants.

ABERDEEN ROYAL HORTICULTURAL.

NOVEMBER 4. The annual general meeting of the members of this Society was held in the Music Hall Buildings, Aberdeen, on this date. Ex-Bailie Milne, vice-chairman, occupied the chair, and, despite the very inclement weather, there was a large attendance. The chairman moved the adoption of the annual report, which showed that the Society's exhibition, held in the Duthie Public Park, Aberdeen, in August last, was one of the most successful shows held under the auspices of the Society. The income for the year amounted to £497 15s. 7d., and the expenditure was £471 15s. 8d., leaving a surplus of £25 19s. 11d., which, with a balance of £17 7s. 11d. at the beginning of the financial year, leaves a credit balance of £27 7s. 10d. The chairman described the report as a very satisfactory one. The honorary president, vice-president, and directors were re-elected, Colonel W. S. GILL was re-elected chairman, Ex-Bailie Milne vice-chairman, Messrs. W. Reid and W. Wyllie auditors, and Mr. J. B. Rennett, advocate, Aberdeen, secretary and treasurer. The other officers were also appointed.

BIRMINGHAM CHRYSANTHEMUM, FRUIT AND VEGETABLE.

NOVEMBER 7, 8, 9.—The fifty-first annual exhibition, held in the spacious Bingley Hall on the above dates, was rather smaller than usual. Although cut Chrysanthemums were not strong numerically, they were of good quality, especially the Japanese varieties, which were large, shapely, and beautifully fresh. Specimen Chrysanthemum plants were well trained and profusely flowered, but competition in the class provided for these was very disappointing, there being only seven exhibits in six classes.

Tables decorated with Chrysanthemum flowers were numerous and more attractive even than usual. Fruit was excellent, especially Grapes and Apples, the latter fruit being richly coloured. Vegetables were also good.

The recently-introduced class for Tree Carnations, for which a magnificent silver challenge shield and £10 were offered as 1st prize, failed to attract a single competitor. Primulas, once Birmingham's glory, were few in number and of indifferent quality.

The honorary exhibits constituted a feature, and occupied a very large area. They included fruit, vegetables, Chrysanthemums, Carnations, Orchids, trees, and shrubs.

It is surprising that this half-century-old Chrysanthemum society should receive only lukewarm support from the well-to-do residents in and near Birmingham. The list of annual subscribers is far from satisfactory, and if the Society is to continue its useful work, Birmingham will have to wake up.

The arrangements made for the convenience of exhibitors by Mr. A. Noakes, secretary, and Mr. John Hughes, staging manager, gave general satisfaction.

SPECIMEN PLANTS.

As already pointed out, competition in the specimen plant classes was poor. It was a walk-over for J. A. KERRICK, Esq., Berrow Court, Edgbaston (gr. Mr. A. Cryer), who was awarded 1st prizes for (1) six Japanese varieties, (2) six large-flowering varieties (Japanese excluded), (3) three Japanese varieties, (4) one large-flowering variety (Japanese excluded), (5) one Japanese variety, and (6) three single-flowered varieties.

T. W. PIGGOTT, Esq., Park Hill, Moseley (gr. 51, R. Bullock), gained the 2nd prize in the last named class.

GROUPS.

There were two exhibits in the principal class, which was for a group of *Chrysanthemums* arranged on a floor space of 16 feet by 10 feet. Cut flowers in water were allowed, also Ferns and other foliage plants. The 1st prize of £10 was won by J. A. KENRICK, Esq., Edgbaston, Edgbaston (gr. Mr. A. Cryer), whose exhibit included a large number of very well-grown plants. A centre cone was formed of huge Japanese varieties, surmounted by a graceful Palm. The corners were composed largely of single-flowered varieties, and in the body of the group tall stands decorated with yellow and pale-coloured Japanese varieties were very effective and much admired. 2nd, HUME C. PINSENT, Esq., Lordswood Road, Harborne (gr. Mr. G. Corbett).

In a similar but smaller class, the 1st prize was secured by T. W. PIGGOTT, Esq., Park Hill, Moseley (gr. Mr. R. Bullock), for a representative collection of well-grown plants effectively arranged. 2nd, H. GREEN, Esq., Gravelly Hill (gr. Mr. L. Fewkes).

In a class for decorative *Chrysanthemums*, to be shown as *garden*, on a space of 15 feet by 10 feet, two very fine exhibits were placed before the judges, whose task was by no means easy in arriving at a correct decision, as the quality of the flowers and arrangement of same were fairly evenly balanced. 1st, Mr. C. H. HERBERT, Hazlewood Road, Acock's Green, Birmingham, whose best effect was produced by the use of crimson, yellow, and bronze-shaded varieties. 2nd, J. A. KENRICK, Esq.

CUT BLOOMS.

Four exhibitors competed in the principal class, which was for six vases of 18 Japanese varieties, one bloom each of these varieties in a vase, the stems of the flowers to be not less than 18 inches long. The 1st prize of £6 was won by Mr. W. IGGULDEN, Lock's Hill, Frome, who had handsome flowers of Reginald Vallis, Bessie Godfrey, Mrs. R. H. B. Marshall, F. S. Vallis, Frances Jolliffe, Miss Ella Greene, Master David, D. B. Crane, Gladys Blackburne, Hon. Mrs. Lopes, Mrs. R. Hooper Pearson, Mrs. F. C. Stoop, Mrs. W. Knox, Mme. P. Radaceli, Miss Annie Nicholl, Frank Payne, Kara Dow, and Annie Hamilton. 2nd, HUGH ANDREWS, Esq., Toddington Manor, Winchcombe, whose best blooms were magnificent, Mrs. A. T. Miller, and Mrs. C. Penford. The last-named exhibitor had the leading vase of three crimson Japanese blooms in Pickett's Crimson, which were very fine.

The best of four exhibits of four Japanese varieties, three blooms of each, came from J. H. WHEATLEY, Esq., Berkswell Hall, Coventry (gr. Mr. W. H. Westbury), who showed splendid blooms of Mrs. Charles Penford, Reginald Vallis, Mrs. R. Hooper Pearson, and Frances Jolliffe. 2nd, Mr. W. IGGULDEN, Frome.

The best single vase containing three blooms of any pink variety was exhibited by Mr. H. WOOLMAN, Shirley, Birmingham, whose examples of Alice Lemon were uncommonly good. 2nd, Mr. W. IGGULDEN, with Reginald Vallis.

J. H. WHEATLEY, Esq., excelled in a class for three white Japanese blooms, with superb examples of Mrs. A. T. Miller. 2nd, Lieut.-Col. BEECH, Brandon, Coventry (gr. Mr. E. J. Brooks), who was placed 1st in a class for one vase of three blooms of any yellow Japanese variety. His blooms of F. S. Vallis were excellent. 2nd, J. H. WHEATLEY, Esq. (gr. Mr. W. H. Westbury), with the Hon. Mrs. Lopes.

For four vases of single-flowered varieties (distinct), E. W. G. WILLIAMS, Esq., Bredebury Court, Bromyard (gr. Mr. H. Tribe), scored with good flowers of F. Stevens, Godfrey's Gem, Countess Egmont, and Lily Godfrey. 2nd, Mr. H. WOOLMAN, Shirley.

A number of classes were reserved for local growers, and of these the most successful exhibitors were Mr. T. W. PIGGOTT, Mrs. RICHARD PEYTON, Mr. E. WRIGHT, Mr. J. WAKEFIELD, Mr. E. CLIFF, and Mr. C. JUDGE.

For 12 Japanese blooms, distinct, arranged with foliage on a space of 6 feet by 3 feet, there were two exhibits. The 1st prize was won by HUGH ANDREWS, Esq., Winchcombe, for a nicely-arranged group of good-quality blooms. 2nd, Mrs. RICHARD PEYTON, Augustus Road, Edgbaston (gr. Mr. W. Young).

A popular class was that provided for single-flowered varieties arranged on a table space of 8 feet by 4 feet. 1st, F. W. G. WILLIAMS, Esq., Bredebury Court, Bromyard (gr. Mr. H. Tribe). 2nd, Major EVERITT, Knowle Hall, Birmingham (gr. Mr. W. Newton).

Messrs. Wells & Co. offered prizes for the best bloom of any of their 1911 Wells Pockett novelties. Mr. W. IGGULDEN showed the winning flower, which was named Mrs. J. C. Kelly.

Tables decorated with *Chrysanthemum* flowers are always popular at Birmingham, and interest on the present occasion was as keen as ever. Tables 8 feet by 4 feet were allotted, and the schedule required these to be decorated with *Chrysanthemum* flowers. 1st, Mr. H. GREAVES, Worthington, Broadway; 2nd, Mr. E. DEAKIN, Hay Mall, Hay Mills; 3rd, Mr. C. H. HERBERT, Acock's Green. It was remarkable that all the above exhibitors confined themselves to flowers of various shades of pink. Many of the unplaced tables were very pretty.

MISCELLANEOUS PLANTS AND FLOWERS.

The best exhibit of 12 plants of *Begonia Gloire de Lorraine* grown in pots not exceeding 6 inches inside measurement came from Col. WALKER, Acock's Green (gr. Mr. J. Freeman). 2nd, J. A. KENRICK, Esq.

In a smaller class for *Begonias*, Mrs. RICHARD PEYTON, Edgbaston (gr. Mr. W. Young), was adjudged the winner, with profusely-flowered specimens.

The Rev. H. BUCKSTON, Sutton Hall, Derby (gr. Mr. A. Shamborough), won 1st prizes in classes for (1) twelve *Cyclamen* and (2) six *Cyclamen*.

J. A. KENRICK, Esq., won 1st prizes in classes for (1) six *Salvias*, (2) six *Palms*, (3) three *Palms*, and (4) one *Tree Fern*.

Mrs. RICHARD PEYTON, Edgbaston (gr. Mr. W. Young), beat two contestants in a class for six single-flowered *Primulas*.

Mrs. GREAVES, Worthington, Broadway, secured the leading prizes in classes for (1) bouquet of *Chrysanthemums*, and (2) basket of natural autumn-tinted foliage and berries.

Prizes offered by Mr. H. H. Ellison for six varieties of exotic Ferns brought three contestants. 1st, J. A. KENRICK, Esq.; 2nd, Mr. JAMES R. SNEY, Handsworth.

Capt. W. H. STARKEY, Leamington (gr. Mr. J. L. Blackburn), secured the 1st prize in Messrs. Webb's class for six pots of *Cyclamen*.

FRUIT.

There were four exhibits in the class for a collection of British-grown fruit on a table space of 10 feet by 5 feet. The 1st prize was won by the Earl of HARRINGTON, Elvaston Castle, Derby (gr. Mr. J. H. Goodacre), who had very fine Barbarossa, Black Alicante, Appley Towers, and Alnwick Seedling Grapes; King of the Pines, Washington, Malster, King of Tompkins County, Emperor Alexander, and Gasconne's Scarlet Seedling Apples; Doyenne du Comice, Beurré Diel, and Beurré Clairgeau Pears; and Countess Melon. The dish of Golden Eagle Peach appeared to have travelled badly. 2nd, Lady HENRY SOMERSET, Eastnor Castle, Ledbury (gr. Mr. G. Mullins), whose Apples and Pears were finely coloured. 3rd, HUGH ANDREWS, Esq., Toddington Manor, Winchcombe.

For a collection of British-grown hardy fruits, Mr. C. W. POWELL, Warnham, Hereford, won the 1st prize with good-sized, well-coloured Apples and large Pears. One Apple (*Gloria Mundi*) was said to weigh 27 ounces. Walnuts, Chestnuts, Medlars, &c., were also included in this meritorious exhibit.

The best six bunches of Grapes (not fewer than three varieties) were exhibited by the Earl of HARRINGTON, who had handsome bunches of Muscat of Alexandria, Black Alicante, and Gros Maroc. 2nd, Mrs. F. NEED, Great Malvern (gr. Mr. J. Jones).

The Earl of HARRINGTON excelled in the class for three bunches of black Grapes, showing very fine examples of Appley Towers. 2nd, Lord HATHERTON, Teddesley, Penkridge (gr. Mr. H. Taylor), with Black Alicante. 3rd, Mrs. F. NEED (gr. Mr. J. Jones).

The best three bunches of white Muscat Grapes also came from the Earl of HARRINGTON.

In a class for two bunches of white Grapes (*Muscats* excluded), Mrs. NEED (gr. Mr. J. Jones) won the 1st prize with the variety Lady Hunt. 2nd, the Earl of HARRINGTON, with Chasselas Napoleon.

Mr. H. S. BATSON was successful in the local class for black Grapes, and Mr. A. G. BULLER in the class for white Grapes.

Lady HENRY SOMERSET, Ledbury (gr. Mr. G. Mullins), won 1st prizes for (1) six dishes of cooking Apples, (2) six dishes of dessert Apples, (3) eight dishes of Pears, and (4) four dishes of Pears. Both the Apples and Pears were of good size and highly coloured.

In the local classes for (1) cooking Apples and (2) dessert Apples, Mr. WALTER JONES, Acock's Green, and Mr. C. WYNN, Selly Oak, were awarded 1st prizes respectively.

VEGETABLES.

The prizes offered by Robert Sydenham, Limited, were for nine distinct kinds. 1st, Mr. T. JONES, Ruabon, who had good Ailsa Craig Onions, Autumn Giant Cauliflowers, and Hollow Crown Parsnips. 2nd, Mr. W. FOLKES, Ampt-hill, Beds.; 3rd, Mr. JAS. WHITE, Bampton.

The 1st and 2nd prizes in the "Robert Sydenham, Limited" local class were awarded to Mr. E. DEAKIN, Hay Mills, and Mr. J. WHITE-BREAD, South Yardley, in the order named. There was spirited competition in Messrs. Webb & Son's class for eight distinct kinds: 1st, Mr. F. BARRETT, Overton; 2nd, Mr. J. HUDSON, Leicester.

The strongest and best competition was in Messrs. Sutton & Sons' class for nine distinct kinds, no fewer than eight collections being placed before the judges, who awarded the premier prize to the Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett), for a superb collection and well set up; 2nd, Mr. FRED BARRETT, Overton; 3rd, Mr. J. HUDSON.

NON-COMPETITIVE EXHIBITS.

Messrs. WEBB & Sons, Stourbridge, were represented by a very handsome trophy of flowers and vegetables. (Large Gold Medal.)

Messrs. JOHN WATERER & Sons, Bagshot, Surrey, had a large number of evergreen shrubs, consisting principally of handsome specimen Hollies and Conifers. (Large Gold Medal.)

Messrs. CLIBRANS, Altrincham, exhibited an extensive collection of vegetables, together with a number of well-flowered plants of *Begonias*, in which the variety "Clibrans' Pink" was conspicuous. (Large Gold Medal.)

Messrs. HEWITT & Co., Solihull, brought a group of medium-sized evergreen shrubs, edged with Golden Privet. (Small Gold Medal.)

Mr. W. J. GODFREY, Exmouth, sent a collection of *Chrysanthemums*, in which were several new varieties of some promise. Mr. GODFREY also contributed a bright display of Zonal Pelargoniums. (Small Gold Medal.)

From Messrs. YOUNG & Co., Cheltenham, came a beautifully-arranged group of long-stemmed Carnations. (Small Gold Medal.)

Mr. H. WOOLMAN, Shirley, had a very attractive display of *Chrysanthemums*. (Small Gold Medal.)

Mr. H. N. ELLISON, West Bromwich, sent a pleasing collection of Ferns and Gerberas. (Silver Medal.)

Messrs. WELLS & Co., Merstham, set up a choice collection of *Chrysanthemums* and Carnations. (Small Gold Medal.)

Miss THOMPSON, Handsworth, sent an interesting collection of Cactaceous plants. (Silver Medal.)

Mr. E. V. LOW, Haywards Heath, exhibited a choice collection of Orchids, consisting principally of Cattleyas and Lelio-Cattleyas. (Silver-gilt Medal.)

From Messrs. H. CANNELL & Sons, Swanley, came an extensive collection of Apples. (Small Gold Medal.)

THE KING'S ACRE NURSERIES, Hereford, exhibited Apples and Pears in great variety, the size and colour of the Apples being very meritorious. (Gold Medal.)

Messrs. PEWTERESS BROS., Hereford, also exhibited a well-coloured collection of Apples. (Large Gold Medal.)

Messrs. W. H. SIMPSON & Sons, Birmingham, had an assortment of vegetables. (Small Gold Medal.)

Messrs. T. B. GROVE & Son, Sutton Coldfield, sent a group of uncommon hardy shrubs. (Bronze Medal.)

Messrs. BAKERS, Wolverhampton, showed hardy shrubs, chiefly Hollies and Conifers. (Silver Medal.)

Messrs. THOMSON & SON, Birmingham, showed a representative collection of vegetables.

Obituary.

Chester Paxton Society's annual exhibition of 1957 featuring the work of 25 artists is held in the Evans Hall Center, on Tuesday and Wednesday, November 14, 15. Secretary, Mr. George P. Miln, Grosvenor Museum, Chicago.

Unit: Average Wholesale Prices		l. d.		s.d. s.d.	
Apples, Oregon					
— Northern					
— per bushel					
— California					
— Northern					
— case	8 0 10	10	0		
Apples, English,					
— per bushel				2 6	6
— Cooking, per					
— bushel				2 6	4
— per cent				4 0	9
— American, per					
— barrel				10 0	14

REMARKS: Since the middle of May, are decreasing. The arrivals of fruit from California this week included 100 cases of Navel and Empire, these exports of Knight, Pines, and Navel. A consignment of Comice Pears, and 600 cases of Cranberries. A consignment of Apples from Nova Scotia amounted to 400 barrels, the principal varieties being Ribston Pippin, Blenheim Pippin, and King of the Pippin. The quantities are considerably in excess of the demand. The Grape trade is firmer for ordinary samples; bunches consigned from Holland are arriving in excellent condition, and those from Almeria are very good; all are in better demand. Muscats are firm at last week's prices. Home-grown Tomatoes are not selling freely. This is, would be to their disadvantage, in view of the fact that they are in good condition. Supplies are

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CARBON DIOXIDE AS FOOD FOR PLANTS.

IT was not my intention to write about my experiments before I could give you the results, but as notices have appeared in the Press I may as well take up the question at once.

Everybody knows that a considerable part of all plants consists of carbon: of quite dry vegetable matter (heated to 100° C. for some time) about 40 per cent. is made up of carbon compounds, but as cultivated flowers, fruit and vegetables contain on an average something like 85 per cent. water, the dry matter amounts to only 15 per cent.; and 40 per cent. of this makes 6 per cent. carbon compounds in 100 parts of fresh vegetable matter or 60 grams in 1 kilogram (about an ounce in a pound). Practically the only source of this carbon is the very small percentage of carbon dioxide contained in the air, which is absorbed by the leaves; of this carbon dioxide, the carbon is retained and the oxygen given off.

As the air only contains about three parts carbon dioxide in ten thousand (0.03 per cent.), 10 cubic metres (10,000 litres) of air contain 3 litres or 6 grams of carbon dioxide, of which 3-11th is carbon (or 1.6 grams), and since this quantity only suffices to make something like 27 grams (less than an ounce) of fresh vegetable matter, it is easily seen what large quantities of fresh air are necessary to supply growing plants with the carbon they require.

In the open air this is not alarming, as

the bulk of air is enormous and its movements maintain fresh supplies, so that the content of the atmosphere in carbon dioxide may be considered constant even where vegetation is strong and absorption heavy. The loss of the carbon dioxide absorbed by the plant is made good by fresh supplies from combustion of coal, wood, oil, &c., by respiration of animals and plants, decomposition of vegetable and animal matter, and last, but not least, by the eruptions of volcanoes. This last source is considered by Prof. Arrhenius as the most important; and to his most interesting work on the "Evolution of the World." I refer those who are specially interested in the modes by which the balance of carbon dioxide is maintained in the atmosphere. It is interesting to observe that Arrhenius does not fear a diminution, but rather anticipates an increase in the immediate future.

This is the more satisfactory as he shows that past poor and rich periods of vegetation were determined by the smaller or greater content of carbon dioxide in the air at the time. His argument for a brighter future in this respect is acute. He reasons thus:—The sea contains carbon dioxide. The amount in the ocean is in correlation with that in the air. If the balance is disturbed it tends to restore itself; that is, if the amount of carbon dioxide in the air is on the increase then the oceans, having less than their proper share, will absorb some of it to restore the balance, and accordingly the atmosphere over great oceans will show a lower carbon dioxide content than it does over the continents. This being the case at present, we are to conclude that the quantity of carbon dioxide in the air is increasing at the present time. Hence we may expect in the course of time a warmer climate and a richer vegetation.

Scientific research seems to prove that vegetation becomes more vigorous in proportion as the amount of carbon dioxide in the air is augmented, and this at least up to 2 per cent., when the normal is 0.03 per cent. This means that a considerably larger crop might be obtained if we could supply the necessary 2 per cent. carbon dioxide. Experiment alone can determine whether this expectation is valid.

In the open air, of course, it is quite impossible to do anything at all for an augmentation of carbon dioxide, and that may be the reason why so little has been heard on the subject. Under glass it is quite another thing. Here we may supply as much carbon dioxide as we like, and thus we come at last to the point to which I wish to draw attention. A certain feeling of a lack of something in plant-house air is not new. I myself wrote 20 years ago (*Orchard House*), after drawing attention to the scarcity of carbon dioxide and the great consumption of it by plants: "It is very likely there may be a need of carbon dioxide, and that it is this deficiency that makes closed houses unwholesome." But neither I nor anybody else (so far as I know) has made any advance since then. Still, every gardener knows that it is impossible to get such a luxuriant growth of vegetables, for instance,

in a planthouse, as is obtainable in a hot-bed. May not the reason be—in part—the plentiful supply of carbon dioxide yielded by the fermentation of the manure? Another fact pointing in the same direction is the thriving condition of plants in small closed living-rooms in spite of other unfavourable conditions. Here it is the carbon dioxide respired by the inhabitants that feeds the plants.

These and other reflections made me, when I planned a new cow-stable this spring, place the latter against the back of a Rose-house and connect them by means of a one-foot opening in the wall, the hole being furnished with an electric ventilator capable of removing a volume of air equal to that of the stable (100 cubic metres) in five minutes. The necessary power is 50 watts. In the house, the stable air is carried from end to end in a galvanized sheet iron tube provided with small holes on the side next the Roses. As the arrangements have just been finished I cannot yet speak of results, but shall do so later. However, I do not expect much from my contrivance during our long dark winters; it is all very well to have plenty of carbon dioxide at the disposition of the Roses, but the utilization of it demands light, and we shall have very little sunshine here for the next three months.

According to information supplied by a veterinary surgeon, the amount of carbon dioxide exhaled by a cow is 0.9 grams per hour per kilogram weight. That is, an animal weighing 400 kilograms gives in 24 hours 400 × 24 × 0.9 grams or 8,640 grams of carbon dioxide, a quantity as great as is found in 14,000 cubic metres air or in 38 kilograms of flowers, fruit or vegetables. With five cows in the stable, it will be seen that there should be plenty of carbon food for my Roses and Carnations in the three houses I have connected thereto, though much of the gas is of course lost by ventilation.

It would be surprising if there do not exist unpublished experiments in this direction. [Experiments bearing on this question have been made. They will be referred to later.—Eds.] Has nobody had planthouses against stable walls with holes from one to the other? And what have been the results? Horse-stables I do not consider of like value; there may be, and usually is, a great deal of ammonia given off from horse manure, and the fumes of ammonia are, generally speaking, injurious.

Considering the care and expense it takes to supply our plants with the necessary manure to ensure a satisfactory growth, and, remembering that the mineral constituents of the manure only supply material for the two per cent. ash and ¼ per cent. nitrogen contained in the plant, it is curious that nobody before has made experiment, on a commercial basis, with a view to supplying larger quantities of carbon dioxide than are contained in the air.

If it is practicable to feed plants in houses with carbon dioxide there is a pleasing future for us gardeners; the product (smoke) of the coal and coke burned in our boilers is mostly carbon

dioxide. As it is now, it is very injurious to plant life, but it is not difficult to clean. I am told that the liquid carbon dioxide now on the market is made by burning coke. What a tempting thought to make use of the smoke as well as of the heat in our greenhouses! This may be a Utopia, but I consider the question worth ventilation, and I expect this better done in your paper and in England than here at home. This is my excuse for troubling your readers with my speculations. *M. P. Andersen, Jönköping, Sweden.*

ORCHID NOTES AND GLEANINGS.

CALANTHE COOKSONIÆ.

MUCH good work in developing the winter-flowering, deciduous *Calanthes* was carried out by the late Norman C. Cookson, and the latest and best pure-white variety for which Mrs. Nor-

"THE ORCHID REVIEW."

THE November issue of this useful monthly journal contains a very interesting article on the nomenclature of hybrid Orchids. A contribution by M. W. S. Lyon, of Manila, on "*Cypripedes on Limestone*," gives as an example the *Cypripedium philippinense* in its native habitat; Mrs. Emily Thwaites contributes a page on the selection of parents for hybridising; and much useful cultural matter, as well as the usual reports of the Orchid Committee meetings during the past month are included in this issue. Illustrations of a group of yellow forms of *Cypripedium insigne*, *C. Lucifer*, and *Oncidium Mantinii* are also given.

SOME BRITISH GARDENS.

(Concluded from p. 332.)

GLASNEVIN BOTANIC GARDEN.

THE botanic garden at Glasnevin, Dublin, is of a large size, and contains a numerous collection of trees. There is an abundance of good water, both running and still; the soil is deep and

good specimen of *Cedrus atlantica pendula*, and also a beautiful plant of the rare *Abies bracteata*. The Caucasian Beech (*Zelkova crenata*) and the purple Beech are as strong here as the best in our Geneva arboretum; and a *Fagus laciniata* is equally noticeable for its strong, healthy growth. Some very old Yews were of special interest to me, as having been planted, probably, by our common ancestors—the Celts.

A Pinsapo, of modest height (we have some in Geneva measuring 60 feet) seemed healthy and in good condition, proving the existence of chalk in the soil. This tree never does well in a pure silicious soil; it requires a combination of limestone, sunshine and wind. *Abies nobilis*, *Pinus ponderosa*, and *P. Peuce*, all do well, the latter especially being in far better condition than a specimen sent me twelve years ago by King Ferdinand of Bulgaria, which has never been very satisfactory.

The shrubs at Glasnevin are much better than on the Continent. I saw an *Abelia triflora* 15 feet high, while my own best and oldest specimen (thirty years old) scarcely attains to 9 feet. A

very fine *Xanthoceras sorbifolia* flowers very freely, but bears no seeds, as it does with us.

The water and bog plants are perfection—and indeed, nothing less is to be expected in such a climate. This part of the garden is wonderfully beautiful and picturesque—a calm river, flowing between banks covered with bright flowers, with a background of green lawns—the real Irish green. Aquatic plants abound in the water; *Hottonia palustris* rears its long, pink spikes, resembling those of *Primula japonica*; on the banks, the giant *Gunneras*, and big groups of *Primula japonica* and *P. pulverulenta* are to be found, together with whole colonies of *Pinguicula grandiflora*, in perfect health, and, wonderful to relate, *Pyrolas* and *Shortias* growing in full sunshine.

The rock-garden is very interesting, though of modest dimensions. I saw there the best collection of *Cyclamen repandum* I ever remem-

ber; some of the plants were bearing twenty-five flowers! There were also the very rare *Sedum trifidum*; some plants of *Helichrysum frigidum* and *Raoulia glabra*. One of the finest features of the garden is a quantity of *Daphne Blagayana*, covering an area of more than 10 square feet—this is another shade-loving plant, which I was astonished to find growing in the open sun.

Sir Frederick Moore's invitation to me to visit Glasnevin was indirectly instrumental in procuring me an introduction to the author of the very clever and interesting *Tourist's Flora of the West of Ireland*—Mr. R. L. Praeger. This gentleman informed me in the course of conversation that the rare *Spiranthes Romanzoffiana*, which I had heard was no longer to be found, is by no means extinct, being still extant in abundance in the north-western districts of Ireland*.

The visit which I have described above was on the occasion of my first stay in the Emerald Isle, which made a deep impression on my mind. Abundance of water seemed its most striking

* *British Orchids*, by A. D. Webster, p. 41; and *Bulletin de l'Association pour la Protection des Plantes*, v. p. 24.

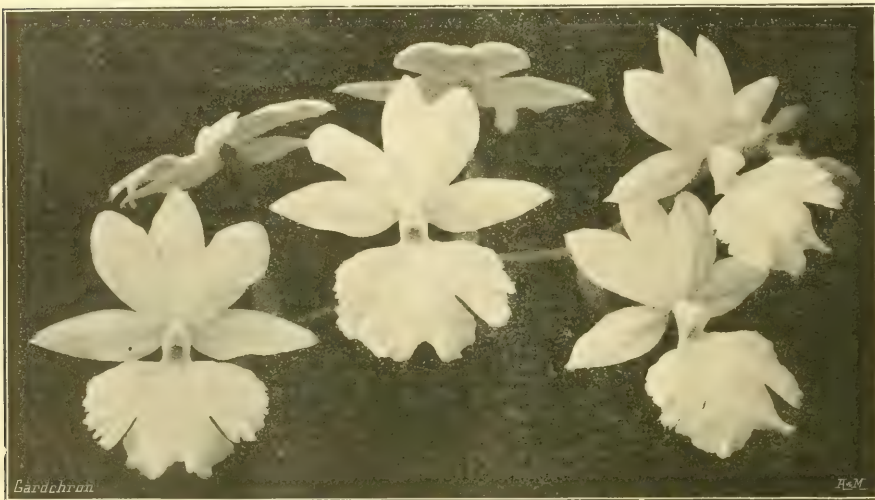


FIG. 148.—*CALANTHE COOKSONIÆ* (C. HARRISII × C. VESTITA RUBRO-OCULATA GIGANTEA).

(Photograph by H. J. Chapman.)

man Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. H. J. Chapman), was accorded a First-class Certificate at the Royal Horticultural Society's meeting on November 7, is a seedling from his crossing. *Calanthe Harrisii* is a good pure-white variety, but *C. Cooksoniæ* is better, the very broad labellum especially being a marked feature. It is singular that no trace of the red blotch at the base of the lip of *C. vestita rubro-oculata* appears in the white *C. Harrisii*.

CYPRIPEDIUM SIBYL SUPERBUM.

Our illustration (fig. 149) represents this pretty hybrid *Cypripedium* for which Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), gained an Award of Merit at the Royal Horticultural Society's meeting on the 7th inst. It is a decided improvement on other hybrids of this class. The flower being white, tinged with bright rose, and marked with chocolate-purple lines. The parentage was given as *C. Francesiæ* (callosum × *Curtisii*) crossed with *C. Fairrieanum*. With regard to *C. Francesiæ*, it should be noted that the name *C. Goultenianum*, of the same parentage shown at R.H.S. meeting on January 16, 1894, takes priority.

rich, and the atmosphere always humid; a very happy combination of circumstances, and thoroughly favourable to successful culture. I have nowhere else seen Ferns in such luxuriance; and growing, too, in full sunshine!

The tree collection of Glasnevin is its most noted feature; and it is one of the most complete existent. Professor Balfour praised it to me so highly that I was almost persuaded into thinking that it must rival a collection of Conifers which we have near Geneva, one of the best in the world. I find that this is not the case; though certainly the arboretum at Glasnevin is marvellously complete for a maritime climate. The Italian Cypress (*Cupressus sempervirens*) and the Stone Pine are both well grown and healthy, although the first-named species has acquired a somewhat awkward shape, having lost its pristine architectural erectness. The Chilean and Australian Conifers are a very pleasant sight; I have never come across so good a collection elsewhere. I was also especially interested by some plants of *Prumnopitys elegans*; these were growing outside, and were quite healthy, though I have never known them planted in the open before. There is a very

feature always adorned with *Molythos* and *Ranunculus aquatilis* (a beautiful flower). And then the Gaise—with its wealth of *Ben Lashons*. I can well appreciate the feelings of Linnaeus, who, seeing it for the first time, fell on his knees, and thanked God for its creation. But I fear that my praise of Irish scenery can go no further; Ireland is not a country I could live in. I have travelled from the west coast to the east, and I found the landscape on the whole dull and flat; no sharp outlines, no peaks or crags, to relieve the monotony of green plain. I must, of course, make an exception in favour of the western coast scenery, which is certainly more picturesque; and there are even some little hills, which might, by a stretch of imagination, be called mountains! The plants of this region are extremely interesting, among others *Saxifraga nivalis* and *S. sponhemica*; and among the beautiful rocks near the sea, my botanist's heart was gladdened by the discovery of the most beautiful of all the Ferns—*Asplenium marinum*.

LISSADELL.

Lissadell, in Sligo, remains impressed on my memory as being one of the most brilliant gardens—and more especially Alpine gardens—that I have ever seen. What a marvellous collection of flowers is there displayed! Of course, it will hardly bear comparison with the botanic garden at Edinburgh, for instance, nor even with the wonderful rock garden of Sir Frank Crisp, which is acknowledged to be the best in England. But, leaving all idea of comparison aside, the garden at Lissadell presents an extremely beautiful and picturesque appearance, comprising as it does all the choicest of the Alpine plants. I, for one, shall never forget so brilliant a picture. Here one may find the best of the rock plants, grouped together in colonies of ten, twenty, or even in some cases a hundred plants, looking as healthy and happy as in their own natural homes. There are some very good *Eritrichium nanum* and *Androsaces*—strange to say, the high Alpine species do better here than the Himalayan, which latter grow at Floraire like weeds. Here may also be seen the best *Primula*s, *Geranium*s, *Campanula*s, and *Saxifraga*s, together with plants from the far north and Antarctic regions; all growing and flourishing in the mild, damp Sligo air. The rock-garden is one of the largest I have seen, and is very well kept; the walls are covered with *Abutilon vitifolium*, *Crinodendron*, *Solanum crispum*, and *Cucurbitaria* species, reminding me of the garden of my late friend Mr. Ewbank, at Ryde. In the woods, *Fuchsia*s are growing wild, and sow themselves freely between the stones of the walls. The new Asiatic *Primula*s, the *Mecynopsis*, and all those aristocratic beauties with which an English collection is always enriched and glorified, abound and luxuriate. A new hybrid *Primula Bulleyana* has just been raised and exhibited by Sir Jocelyn Gore-Booth, the happy owner of this paradise. This flower will be a welcome addition to the Alpine garden.

THE TULLY NURSERIES.

I next visited the Tully Nursery, near Kildare; a large, but still young, garden especially devoted to hardy plants. I was pleased to find there our Swiss *Daphne Cneorum* growing as a shrub, much better cultivated than I have ever seen it before in a garden, and as healthy as in its wild state on the limestone of the Juras. There is also a fine collection of our terrestrial *Orchids*, which are very well grown and tended *con amore* by Mr. Paine, the manager of the nursery.

I was most interested to find at Tully a feature of which I had heard, but had never seen, to wit, a "Japanese" garden, partaking also of the nature of an Alpine one.

It was most amusing to see the little rock plants of our mountains, growing in English rocks, in the shape of Japanese shrubs, and in

close proximity with Japanese lanterns, bridge and dwarf trees! It was of especial interest to me at the time, because only a few days before I had been talking to a friend of mine, Dr. E. van den Broeck, in Brussels, who is himself in course of erecting such a mixed garden. I gave him as my opinion that the idea was an absurdity—but now I have seen the realisation, I cannot say that it is ugly or unpleasant; and it certainly is both curious and characteristic.

Alpines are grown at Tully in immense quantities in pots, and they all look very healthy, even the rarest and most delicate of the Gentians. Still, I must add that the climate of Kildare seems to suit particularly the high Alpines.

A NEWRY NURSERY.

As a termination to my Irish tour, I went to Newry, a place famous for old and rare plants.



FIG. 149.—*CYRTOPODIUM CHEILANTHIFOLIUM*
(C. FRANCIS & CO. LIMERICK).

(See p. 350.)

and shrubs. I spent a whole day there, going over the gardens and plant collections of Mr. Thomas Smith, a connoisseur and true amateur of flowers, and one of the most skillful growers I have ever met—a horticulturist to the tips of his fingers. Daisy Hill Nursery covers a hill slope, facing (if I remember rightly) in a westerly direction. Long before I reached the nursery (indeed, as soon as I left the station) I could see this hill slope, covered with *Azalea*s, *Rhododendron*s, and flowers of all kinds.

The garden (for so it is, though called a "nursery") is extremely well arranged, and most artistic. In every corner is to be found some rare and choice plant; and a plant lover could pass there many hours with much profit and enjoyment. I found a number of old friends of which I had

lost sight for many years; *Stachys coccinea*, *Campanula Lewisii*, *Pyrola umbellata*, *Sedum trifidum*, *Lobelia sessiliflora*, *Ranunculus Lyallii*, and others, too numerous to name. There are altogether forty acres in cultivation, including here and there small ponds, marsh gardens, &c. I was much surprised to see some *Laurels* (*Prunus Laurocerasus*) grown as standards; and also here, as at Glasnevin, tender and delicate Ferns exposed to the sun. I think that Newry is, after Edinburgh, the richest in rare plants; and I only wish that I had time to study the collections more closely. Henry Corréon, *Florist, Newry, Co. Down*.

INDIA.

GARDENING IN COIMBATORE.

THE recent outcry in England at the almost unprecedented drought has greatly interested us exiles, and, as I am keenly interested in horticulture, I have been led to contrast the conditions prevailing at home with those in many parts of Southern India. Here are some details for the past season in Coimbatore, where I am trying, with some measure of success, to establish a beautiful garden. We are in a very dry locality with, however, a fairly retentive soil. For the five months from November to March we had just over half-an-inch of rain, and during that time we had clear, burning skies and a very trying wind blowing over some 300 miles of bone-dry land. Whole months pass without a drop of rain, and, when we do occasionally get a shower, it is of little use, for evaporation is very rapid and very little enters the soil. I have had to dig a large quarry in the ground some 30-40 feet square to obtain water, and as the water table at the gardens is about 40 feet down, the depth of the necessary excavation is indeed great. This we call a well. The amount of water obtained, since there is no spring, would be sucked up by a small oil engine in an hour, and yet it must serve to irrigate eight acres of land.

Perhaps the method I have been led to adopt in forming grass lawns may illustrate our conditions as regards moisture better than anything else. There are many grasses in the neighbourhood, all of them of markedly xerophytic habit. Most are shallow-rooting and, after forming their seeds, die away, leaving the seeds on the ground for the next shower. But the *Hariali* Grass, the "dub" of Northern India, the "Devil's Grass" of the West Indian plantations and *Cynodon Dactylon* of the botanist, lives largely underground. Most of its growing shoots are some 6 to 9 inches below the surface, and its roots go much deeper. It is thus able to withstand long periods of drought. When about to make a lawn I scrape the ground clear of every vestige of vegetation. Soon tiny shoots of *Hariali* emerge and form small spots of colour. When the weather continues dry these turn brown, and are mown down wholesale by the white ants, and the *Hariali* resumes its underground condition. When, however, rain comes the *Hariali* shoots spread and, having the advantage of a deep root-system, soon leave the other Grasses behind. Sooner or later the whole ground, sometimes after several years, is covered by a close mat of this Grass. Its greatest rival is an ephemeral "Spear Grass," which, growing rapidly, forms its seeds and dies down. When the *Hariali* is poorly represented the first result of my operations has been to produce a thick covering of this irritating Spear Grass, which pierces our clothing with its sharp stinging points. But sooner or later the *Hariali* takes its place, and the method may be relied upon for ultimate success. We have far too little water to irrigate our Grass plots. It is a fight between two xerophytes, an ephemeral one and a perennial, and, in the long run, the perennial wins. Some day I may be tempted to send you some photographs of my garden. C. A. Barber, Coimbatore, India.

NOTES ON IRISES.

IRIS SULPHUREA KOCH.

This interesting Iris was described as long ago as 1843 (C. Koch in *Linnaea*, xxi., 1848, p. 637), but has suffered from an unfortunate mistake by which its name was reduced to a synonym of De Candolle's *I. flavescens* (Redouté *Liliacée*, p. 375). The latter Iris is well known in gardens as a pale, yellow-flowered, bearded Iris, which flowers in May shortly after *I. germanica*. The confusion of the two plants doubtless arose from the statement of De Candolle that Redouté's figure represented an Iris from the Caucasus. This statement is unsubstantiated, and gives the impression that it was not based on any accurate information, an impression which is strengthened by the fact that no wild specimens of this Iris appear to have found their way into herbarium collections. Moreover, repeated attempts to self-fertilise, or even to fertilise, *I. flavescens* have so often resulted in failure that we are led to suppose that it is really only a garden hybrid of unknown origin.

Two years ago I was fortunate enough to receive from the Caucasus some seeds and a couple of plants under the name of *I. flavescens*. These latter and six or eight seedlings have flowered this year, and there is no doubt that we have here a totally distinct Iris. The leaves are of a bright, yellowish-green, with a glaucous bloom, and die away altogether in winter. The first new leaves of each tuft have very blunt obtuse ends and a distinctive feature is the conspicuous white edge, which is particularly noticeable where one leaf crosses another.

The stem is not much more than 18 inches high, and the lowest flower barely overtops the leaves; indeed, it is sometimes concealed among them. The inflorescence consists of a terminal head of two flowers and two side branches, each set in a large inflated bract-like leaf, and bearing a single flower. The colour is a pale, sulphur-yellow, and the bases, both of the standards and of the falls, are veined with greenish-brown. The beard is bright orange-yellow.

The whole habit and appearance of the plant distinguish it at once from *I. flavescens*, and a very conspicuous difference is found in the spathes. In *I. flavescens* these are nearly wholly scarious when the flowers open, whereas in *I. sulphurea* they are wholly green, inflated, and of a curious, membranous texture. Moreover, the plants set seed fairly readily when self-fertilised and form large capsules, tapering to a conical point above and almost circular in section.

The Iris just described seems to agree in all points with the specimen of *I. sulphurea* described by C. Koch, and collected by K. Koch on the lower slopes of the Caucasus shortly before the middle of the last century. This specimen I was fortunate enough to find lately in the Herbarium of the Berlin Botanic Garden, and I have no doubt as to its identity with my Caucasian plants.

Of Iris names there are already so many that any additions are unwelcome, but in this case the rehabilitation of the name *I. sulphurea* seems to point not to an increase but to a reduction in the total number of species. Close observation of specimens of *I. Talischii* Foster and of *I. obtusifolia* Baker and of seedlings of both of them, and comparison with *I. sulphurea* have led to the conclusion that all three names refer to the same plant. This conclusion is hardly surprising when we remember that *sulphurea* comes from the Caucasus and *obtusifolia* from Masanderan, the Persian province on the southern shore of the Caspian, while *Talischii* is situated on the west shore of the Caspian, half-way between Masanderan and the southern end of the Caucasus range. The fact is, therefore, that we are able to set up *I. sulphurea* as a good specific name, and reduce to synonymy of it both *obtusifolia* and *Talischii*. B. B. Fisher, *Charterhouse, Godalming*.

DELPHINIUM "MOERHEIMII."

This beautiful Delphinium (see fig. 150) was raised by Mr. B. Ruys, of Moerheim, Dedemsvaart, Holland, and is one of the best white varieties. The plant is a great favourite with lovers of hardy flowers, and its value has been recognised by the Floral Committee of the Royal Horticultural Society, an Award of Merit having been conferred on it at the meeting held on June 22, 1909. The following particulars are sent us by the raiser, to whom also we are indebted for the photographs reproduced in figs. 150 and 151.

"Messrs. Kelway & Son, Langport, sent out the first cream or creamy-white varieties of Delphinium, now generally known under the names of Beauty of Langport and Primrose. Mr. Charles Irvine, Jedburgh, next introduced the variety 'Albion,' a semi-double variety, but with a bluish shade, which turns to nearly white when the flowers are fully expanded in the sun. The French moss-tymer, M. L. H. G. and M. G. G."



FIG. 150.—DELPHINIUM MOERHEIMII:
FLOWERS WHITE.

beaux, introduced several novelties, including Mont Blanc and Sceptre Blanc, which, however, are not so white as their names would suggest; also 'Polar Star,' which has creamy-white flowers, with a sulphur-yellow 'eye.' This variety produces strong, erect spikes, and grows taller than the others.

"The following varieties may be mentioned, Jeannette, Fröken Scheltema, Progression, and Nulli Secundus, all having a more or less creamy colour, the last named with a dark brown eye, which gives the spikes a striking appearance. Nulli Secundus was introduced by Messrs. R. Wallace & Co., and received an Award of Merit from the R.H.S. in July, 1909.

"For about 20 years I have been interested in white Delphiniums, and have purchased all the light-coloured novelties which I could obtain, with a view to crossing them with large-flowered, light-blue varieties of strong constitution. Thousands of seedlings proved worthless, but at last I was successful. Some years ago, in the month of July, I found in a

batch of seedlings one plant with five spikes. Of these, three spikes bore pure white flowers, two bore blue flowers, and the remaining spike bore some light blue and some parti-coloured—half blue, half white—flowers. Next year, when the five divided plants flowered, I noticed that two only had white flowers, two only blue flowers, and one plant had some flowers white and others blue, whilst still others were half white and half blue. I succeeded in almost fixing the pure white variety, not more than 1 or 1½ per cent. coming blue-flowered.

"Delphinium Moerheimii has a very healthy growth, which is not subject to mildew. The dark green leaves are finely cut, and the stems attain to a height of 5 feet, producing many side spikes, which prolong the plant's flowering throughout the whole summer. The large, single blossoms are of the purest white, and the spikes have a loose and elegant appearance. The first flowers appeared this year on June 20, and fig. 151 shows a field in full flower on July 24.

"The blue variety, which may be regarded as the 'companion' of Moerheimii, I have named 'Capri.' It is in every respect a counterpart of the white sort, having the same habit, size of flowers, and freeness of flowering. The colour is sky-blue, of a finer shade than Persimmon and others of the Belladonna type."

FORESTRY.

SEASONABLE WORK.

THE season for planting has arrived, but, before proceeding with new plantations, examine carefully those that were made last season, and remove any plants that are dead. When removing them, the holes should be dug out as the work proceeds, as this will save time in replanting. After the renovation of each plantation has been completed, collect all dead plants and convey them to some spare, open space and burn them. In doing this, care should be taken to see that no part of the plantation is injured, either by the smoke or heat, as damage may be done by the former as well as by the latter. The past season has proved very disastrous to newly-planted coverts, especially on dry soils, and many plants will be found to be dead. In purchasing the new plants, insist on having those that have been transplanted, no matter what variety, as these have a great advantage over those that have not been moved. One often sees an advertisement of a cheap lot of Conifers, &c., but the plants are generally a sorry disappointment to the purchaser. Another very important point to bear in mind when ordering plants is to have them put on rail so that they reach their destination about the middle of the week; if they arrive on a Saturday they have perforce to remain unplanted until the following Monday. This is very detrimental, for the roots become dry, and the plants lose their vigour, and, probably, look stunted for a year. Should the roots become dry during transit, they should be dipped into a mixture of clay and water, which should be rather thinner than ordinary paint; this will greatly assist the roots to regain their plumpness. When planting standard trees of any kind in or near coverts, the following preparation will be found very effective in protecting them from injury by hares or rabbits. Take half a bucketful of clay, mix it with linsed oil until the clay has dissolved into a paint-like mixture, then add 1 lb. of soot and 1 lb. of lime, stir well until the whole is thoroughly mixed, then apply it with an ordinary paint-brush to the stems of the trees. The preparation will last for 12 months, at the end of which time the coating can be renewed if necessary. A. G.

THE MARKET FRUIT GARDEN.

AFTER five months of drought, October gave us a great deal more than enough rain, and this experience is similar to that of seven out of the last nine seasons, so far as a rainy October is concerned; while in several of them the excessive rainfall followed a very dry September. The results of such conditions are more serious on ordinary arable farms than in market gardens or fruit farms, as shown by the fact that, in the seven seasons referred to, it was impracticable for farmers to sow winter Corn crops on all the land intended for them, while in some of the seasons the deficiency was great. At my station the total rainfall of the five months ended with September was only 4.85 in.; whereas, in October, up to the morning of the 29th, the measurement was 5.44 in. The hindrance to work after the 18th, when all but a small proportion of the downfall took place, was, of course, very inconvenient; but if a generally fine November had followed, the thorough soaking of the soil might have been regarded as beneficial rather than otherwise in fruit planta-

in considerable quantity and on most days. In my own case, a third cause of delay arose from the extreme slowness of draining a piece of land before ploughing and sub-soiling it, the soil at a depth of 2 feet being so hard that a pickaxe had to be used in parts of each drain.

Plums have dropped their foliage entirely, and Gooseberries and Black Currants sufficiently for transplanting, so they may be put in whenever the weather is favourable. Sad to relate, a great many Plums and Black Currants planted last winter were killed, or so badly dwarfed by the drought that they will have to be replaced. On the other hand, Plums and Currants, as well as Apples, planted a year earlier, made particularly vigorous growth.

MANURES FOR FRUIT TREES.

The 15th annual report on the Worcestershire Experimental Garden, at Droitwich, contains the results of applying different dressings of manure to Apple and Pear trees. Unfortunately, only two trees were used for each treatment, and there were no unmanured trees as checks. The individual differences of fruit trees are so great that many times two trees are necessary for

Currants raised from cuttings, in the season succeeding the planting; but, on the other hand, no difference whatever is noticeable in Apples or Black Currants in an unmanured row, as compared with other rows dressed with artificials containing nitrogen, phosphoric acid and potash. In the Geneva case, the top foot of soil was found, on analysis, to contain sufficient of the three principal ingredients of a mixed manure to last for much more than a tree's lifetime. In my case, the trees are growing on land liberally manured with a complete mixture of artificial or town manure for Potatoes during some years, and it is probable that the residues of these manures afford full nourishment to the trees and bushes for the time being. That even artificial manures sometimes have a marked effect upon fruit trees is shown at Hadlow, in Kent, where Dr. Dyer and Mr. Schrivell have been carrying on experiments for many years. Some Apple trees there, dressed annually with nitrate of soda and other manures, including potash, have grown far too rankly, at the expense of fruiting, while unmanured trees beside them have made comparatively feeble growth. This is an example of excessive manuring, but, none the less, it shows the effect of the manures. Some Goodenough berry bushes in the same place, regularly manured with mixed artificials, are strong and healthy, while others, from which potash alone was withheld, are worthless. Heavy manuring should not be pursued until after trees have got into the fruiting habit. After that, it is difficult to force too rank a growth by any amount of manuring, unless excessively hard pruning is also pursued.

CODLIN MOTH INJURY.

It appears that Apples have been injured by the maggots of the Codlin moth to an uncommon extent this season. Perhaps this is in consequence of the quite unusual second brood of the pest, referred to in these notes a month ago. It is easy enough to prevent injury by the first brood to a considerable extent, as we know precisely when to include arsenate of lead in a spraying, namely, just after the petals of the blossom have fallen. This poisons the maggots when they attempt to eat their way into the embryo Apples close to the calyxes. But, as in this country we probably do not have a second brood once in 10 years, it is hardly worth while to spray annually against it, and we cannot tell precisely when to spray even if we are disposed to do so. This year, the work of the second brood was first noticed by me early in September. It would have been useless to spray then, as the maggots were inside the Apples. Moreover, it would be dangerous to cover Apples nearly or quite full grown, with an arsenical spray-stuff, in spite of the fact that American growers, who get the second brood commonly, disregard that danger. Apart from this point, it would be necessary to watch for the first appearance of the moths, and to spray immediately after they were seen.

BITTER PIT OR FRUIT SPOT.

There is reason to fear that one of these two diseases of the Apple is increasing in prevalence in this country. I say "one of these two," because, as their appearance is similar, they are often confused, though a mycologist who has studied their respective symptoms can easily distinguish them. Both produce spots, which become sunken and brown, and both cause corky degeneration of portions of the tissues of the fruit, penetrating sometimes to the depth of several cells. Most persons, probably, have had Apples which, when pared, showed these brown specks, and have found that they penetrate, in some cases, nearly to the core. If "bitter pit" or "fruit pit" imparts a bitter flavour to the fruit, I have never noticed it, and this may indicate that my pitted Apples are subjects of fruit spot (*Cladosporium pomorum*). The Board of Agriculture cannot enlighten me on this point. The latter is a fungus disease, controlled by the same spray-stuffs as scab, while "bitter pit" is not caused by a fungus, and no preventive or remedy for it has been discovered. A report on the recent fruit show of the Royal Horticultural Society states that Apples affected with "bitter pit" were noticed in several of the prize lots. It is astonishing that any grower should send such Apples to a show, and still more astonishing that the judges should award prizes to fruit so affected. *A Southern Grower.*



FIG. 151.—DELPHINIUM MOERHEIMII IN MR. KUY'S NURSERY, DEDEMSVAART.

(See p. 352.)

tions, and in fresh land to be planted. One would hesitate to plant trees or bushes in land as dry as it was a foot below the surface before the rainy period, which began on October 19. Moreover, either ploughing and sub-soiling or bastard trenching were almost impossible before that time. But November, so far, has proved even wetter than the first half of October, 4.12 inches of rain having been measured at my station up to the 11th, inclusive.

THE PLANTING SEASON.

Most fruit-growers, it may be assumed, would prefer to plant trees and bushes in November rather than in any subsequent month of the planting season. It is to be hoped, therefore, that the rest of the month will not be very rainy. At present, the foliage on young Apple trees is quite green, and, as is so often the case, delay in the commencement of the work will arise from this circumstance. Another cause of delay is the unprepared state of the land, due to the previous September drought. This delay was increased by the fact that after the land became soft enough for sub-soiling rain continued to fall

each treatment, in order to test results satisfactorily. Again, "garden refuse" (a very indefinite substance in relation to its fertilising qualities) was one of the manures. By far the greatest crops and best quality of fruit in 10 years were produced on a plot dressed (presumably annually) with stable manure and a mixture of inorganic fertilisers containing nitrogen, phosphoric acid, and potash. Stable manure alone was second in results, garden refuse being third, and artificial manures last. In the case of Pears, stable manure alone gave the greatest crops, the same with artificials being second, artificials alone third, and garden refuse last.

In the Woburn experiments, the results of experiments in different manurings were hardly, if at all, distinguishable for some years, farmyard manure showing some good effect ultimately.

A report of experiments carried out at the Geneva Experiment Station, in New York State, shows negative results, and the conclusion of the writer is that the manuring of Apple trees in the district of the trials is not profitable. I have made several experiments of the kind myself, and have usually found it difficult to decide whether the applications did good. Mixed artificials had a wonderful effect upon young Black



The Week's Work.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Gardener Foreman, Royal Gardens, Windsor.

FORCING ASPARAGUS.—This is an easy matter provided good, strong roots are available for the purpose. At Windsor, we lift a few of the plants from the oldest beds each season for forcing, which necessitates forming fresh beds each spring, a system that answers well. Gentle forcing only should be resorted to, as excessive heat will cause the shoots to grow spindly. We prefer hotbeds made of leaves which have been thrown together some time previous to use, in order to ferment and sweeten. These are placed in deep, slightly-heated pits when the heat of the fermenting materials has risen to 75°. The leaves are trodden lightly together and covered with a few inches of thoroughly-decomposed manure, finally placing a thin layer of sifted leaf-mould. When the temperature of the bed is 75°, and there is no danger of it rising higher, the roots may be carefully dug up and placed as closely together as possible, filling in the spaces between them with finely-sifted leaf-mould, which should be watered with clear water warmed to 60°. No further covering will be necessary until growth commences, at which stage a layer 6 inches deep of finely-sifted leaf-mould should be spread over the bed. This will cause the young shoots to hasten into growth. Fire-heat will not be necessary until severe frosts occur, especially if the pit can be covered up at night with mats or other suitable materials to maintain the top heat at about 50°.

FRENCH BEANS.—French Beans in pots should be given frequent waterings of weak liquid manure to keep them growing freely, and the foliage syringed twice daily with the same object in view. If supplies are desired throughout the winter, a sowing should be made every 10 days, using 7-inch pots. Place the pots in a house having a night temperature of 60°, and keep the plants close to the roof-glass, admitting fresh air whenever the weather is favourable. The soil for this crop may consist of three parts turfy loam and one part leaf-soil, with sufficient rough sand to keep it in a porous condition. Osborn's Prolific is a reliable variety for winter sowing, or Ne Plus Ultra may be selected. When the plants are a few inches high, they should have small sticks placed round them to keep the shoots from becoming entangled with each other. Stand the pots in a sunny position, within a short distance of the roof-glass; shelves that are used for forcing Strawberries are very suitable places.

LETTUCE.—Plants of Lettuce in cold frames should be frequently examined, and all decaying foliage removed. Stir the soil between the plants to prevent it from becoming sour, and remove the lights during dry days, replacing them again at night-time. Dampness is the worst trouble with this crop in winter, and should be avoided as far as possible by tilting up the lights in rainy weather. If any space is available in cold pits or frames, this may be filled with late-planted Lettuces from the open borders, before they are injured by frost or heavy rain. If lifted carefully, with a good ball of soil, they may prove a valuable crop before the winter is over. Autumn-sown Lettuces should now be a good size, and may be planted at once in some sheltered spot; this sometimes proves a valuable crop in April, when salad plants are scarce. A sowing of Lettuce seed may be made at once in a cold pit, in soil placed to within 1 foot of the glass. The plants will be ready for planting in box frames very early in the year, and should be ready for use in April. May King is a good variety for the purpose, forming heads of a good size, and making quick growth. If the frames are placed in a sheltered position, they may be removed from the Lettuces in March if they are required for more important crops.

MUSTARD AND CRESS.—A sowing of this salad should be made soon in gentle heat, making fresh sowings at least once weekly during the winter months, so that an unbroken supply may be maintained.

FRUITS UNDER GLASS.

By E. BECKFILL, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

STRAWBERRIES.—For a very early supply of forced Strawberries select plants with good, well-ripened crowns. The pots should be washed, the drainage materials examined, and, for the first few weeks, a very gradual system of forcing adopted. For the first week or two the pots may be stood on a shelf in a cool house, where plenty of air can be admitted during the daytime, gradually inuring the plants to increased warmth as growth becomes active. Though this method appears a somewhat slow one it is preferable to hastening the plants into growth during the early stages with fire heat, especially in the case of the earliest batches, as a sudden development is conducive to weak flower-spikes. Water must be afforded with discretion, and, though the plants do not require a lot of moisture, at the same time the roots must not be allowed to become dry. If the surroundings are kept moist when the weather permits, this will do much to keep down attacks of red spider, while should mildew appear, dust the leaves with flowers of sulphur, using the black kind for preference. In all cases elevate the plant as near to the roof glass as possible, and should it be considered at all necessary, fumigate the house with a mild application of the X.L.-All preparation.

PEACHES IN LATE HOUSES.—Trees that carried late crops of fruit may now be pruned and trained. At the same time, cleanse the house thoroughly, top-dress the borders, and get everything else in a proper condition to commence forcing. The forcing of late trees is done under more natural and favourable circumstances than in the case of early varieties; therefore, the wood may be trained in sparingly. Remove as much of the old shoots as possible, especially those that are deficient of the current season's growths, using a small pruning saw, and afterwards making a clean cut with a sharp knife. Young, coarse growths should be removed entirely, and any root-pruning that is necessary carried out without delay. Keep the trees in as dormant a condition as possible, and provided the fruit trees are the only consideration, open the ventilators both day and night, maintaining a little warmth in the hot-water pipes to prevent them being injured by frost. If the borders exhibit signs of dryness, water them copiously, as it is a mistake to allow the soil to become dry, even when the trees are at rest. Excessive dryness at the roots is probably the cause of "bud-dropping" when forcing is commenced. If other plants, such as Chrysanthemums, are in the fruit-houses, it may be necessary to afford warmth to prevent the blooms from damping, but even then a circulation of fresh air should be admitted through both the top and side ventilators whenever the weather permits.

CURRENTS.—Currents are occasionally forced to provide variety. No delay should be occasioned in lifting the bushes if this has not been done already, potting them firmly into pots 10 to 12 inches in diameter. The receptacles must be well drained and cleansed, as for other pot fruits. Select young plants with plenty of clean growth and well syringe them with an insecticide before introducing them to the fruit-house. Both Red and White Currents force well, but the Black is not so suitable. Do not subject the plants to too much heat, especially at the commencement, treating them much in the same way as advised for Peaches. Select varieties that produce fine berries and long bunches.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of HADDINGTON, K.T., Trentham, East Lothian.

TURF OPERATIONS.—It is not unusual for the turf at the foot of pedestals, sundials and similar objects on lawns to become, in the course of time, above the general level. Now is the proper time to remedy this evil. The turf should be cut into strips each 9 inches wide, sliced underneath, rolled back and just sufficient soil removed to restore it to its original level. A gentle pat with the back of a spade completes the operation. Sometimes the turf near the edges of flower-beds needs to be levelled in the same manner; where flowers have been allowed to overgrow the edges the outline must be restored to the original form. In geometrical flower gar-

dens the lines are certain, sooner or later, to become untrue, and it may necessitate much trouble to go over each bed and lay it out again to its proper dimension and shape. The whole of the lawns, grass paths and other grass plots should be carefully swept when dry, to present a neat appearance for the winter.

ROSES.—The planting of Roses may now be proceeded with and completed as soon as possible. Old-fashioned sorts such as Rosa gallica, the Scotch and Cabbage and Moss Roses may be pruned, as they are perfectly hardy. Any of the old wood that needs thinning from Ayrshire Roses and briars may be removed now, and the ground in which the plants are growing neatly pointed over with a fork. Those who wish to bud their own standards will find this the best time to visit hedgerows, where the briars grow wild, selecting only those with stout, straight stems. If these briars are planted in an exposed position it may be necessary to give each the support of a stout stake. Any time up to the end of the present month the more tender Roses should be protected by some suitable material, although nothing seems to prevail against intense and long continued frost. But it will prevent the bark from being injured, and sometimes killed through the sun shining on the plant directly after a sharp frost.

SEEDS.—It is remarkable that numbers of plants and shrubs that do not usually produce seed in this country have seeded during the present season. Those who have taken advantage of this to gather seeds will find most of them are ready for cleaning, after which operation they should be stored in paper bags. Late ripening kinds may be kept longer in the seed vessels. If more seed is saved than is required, it provides a good opportunity of exchange with other gardeners and flower lovers. Many possess plants that are not common, or which cannot be procured through the usual channels; in such cases it is not only a pleasure, but almost a duty to distribute seeds among people who are able to appreciate uncommon plants and to do them cultural justice.

VIOLETS.—Violets have, to a great extent, recovered the loss of vigour apparent during the summer months, and have been yielding a few flowers during the past few weeks. It is worth the trouble to make them tidy, by removing dead leaves and other rubbish, before the advent of winter, afterwards applying a light dressing of sifted compost all over the plants, which the first heavy rain will wash off the foliage. The effect of this top dressing will be apparent in the spring, when growth is renewed.

BORDER ASTERS.—Michaelmas Daisies are still flowering, and among them the following are specially good:—Asters ericoides, Tradescanti, diffusus (horizontalis), turbinellus, Nova-Anglia ruber, and the varieties Enchantment, Hon. Edith Gibbs, Jessie Croome, and Climax. The last-named is a very fine one that it should be grown specially in pots for house decoration; on single stems it produces great pyramids of the most beautiful flowers.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Asstn. Clinton Gardens, Buckinghamshire.

RASPBERRIES.—The pruning of the Raspberry is a very simple operation, and may be carried out in mild weather at any time during the autumn or winter. If the old canes have not been removed, as advised in a former calendar, no time should be lost before doing this, cutting them off as close to the ground as possible, at the same time selecting the stronger and best-ripened canes of the current season's growth for fruiting next year. All small or misplaced canes should be removed, retaining those only that are placed nearest to the centre of the stool, thus keeping the plantation compact and orderly. When the canes for future bearing have been selected, they should be tied securely to the stakes, wires, or trellis, and the surface of the soil mulched with half-decayed manure. The canes may be shortened back according to the strength of the individuals, the weaker ones to about one-half, and the stronger to three-fourths of their entire lengths. The past season has proved most favourable for the ripening of the canes, most of them being in an excellent condition for fruiting. The Raspberry requires a deep, light, loamy soil, moderately enriched with

well-decayed manure. Young canes or suckers may be planted during October or November, in mild weather; they frequently form new roots before the winter sets in. If grown in groups, the canes may be planted in rows about 5 feet apart, allowing 4 feet between the rows. Many train the canes to wires, in which case they should be planted singly, at about 10 or 12 inches apart. In dealing with old plantations, where the plants are not very vigorous, a good dressing of well-decayed manure should be lightly forked into the soil about the roots, but under no consideration should a spade be used. It is not wise to work the manure into the ground to a greater depth than about 3 or 4 inches, otherwise many of the surface roots will be damaged or destroyed. New plantations of Raspberries should be made at least two years before they are intended to replace older ones; by that time the newly-planted canes will be in a good condition of bearing.

GENERAL REMARKS.—Replace any vacancies on walls where the trees have failed, and endeavour to have all wall trees in a proper order as soon as possible. When a tree is not doing well, there is generally something wrong at the roots. Almost all kinds of fruit trees do best in a good, deep, loamy soil, with a dry subsoil. Any trees that have proved unproductive, or in any way unsatisfactory, should now be lifted carefully, the drainage made perfect, fresh soil added to the border, and the trees freshly planted. When planting is completed, push on with the work of pruning as much as possible. Fig trees should have the branches unfasted from the walls and tied in bundles, so that, when very cold weather sets in, they may be easily and well covered with straw or dry fronds of Bracken Fern. This protection will often save the first crop of fruit the following season. The pruning of all kinds of fruit trees may now be commenced in earnest. Trees that are pruned regularly will not require much attention beyond removing a shoot here and there where they are too numerous, and thinning the spurs where these are crowded. Trees in orchards that have not been pruned regularly will require much more thinning and shortening. These should be carefully dealt with, well thinning the branches, particularly from the centre of the tree, which should be kept open, shortening and thinning the spurs and fruit-buds, retaining the plumpiest and best buds nearest the origin of the spur. The object in view should be to obtain buds near at home, and to have the spurs at proper distances apart, so that both sun and air may have free access to them. The early thinning of the buds and spurs strengthens those that are left, and goes far to ensure the setting of the blossom the following season.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchard Glower, 14, St. G. I., Holford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

PLEIONE.—Pleiones, known as Indian Crocuses, are charming little Orchids that make a bright and effective display during the dull days of winter. *P. lagenaria* commences flowering in the late autumn, being one of the most useful for gardens, and, also, one of the most generally grown. If a good stock of plants is cultivated, a display of blossom may be maintained for many weeks by introducing successional batches in a warm temperature. *P. maculata*, with its variety *alba*, is a charming species that closely follows *P. lagenaria* in flowering. *P. wallichiana* and *P. humilis* produce beautifully-coloured flowers that are larger than those of *P. lagenaria*, and are especially valuable on account of their later blooming. Pseudo-bulbs of Pleiones usually last only one year, the old ones decaying as the new are being formed. The plants are deciduous, and produce their flowers concurrently with the young growths. They have distinct seasons of growth and rest, therefore, as they commence to grow at different seasons of the year, they need to be potted at different times. All are most satisfactory when repotted annually, the best time to do this being immediately after the flowers are over. In shaking the compost from the old pseudo-bulbs, the last season's roots will, as a rule, be found to be quite dead, and should be cut off about an inch from the base, the portion that remains fixing the plant firmly in the new compost. Some growers fill large, shallow pans

with pseudo-bulbs, making a good display in this way, but small pans are preferable for grouping and other decorating purposes. In either case the treatment is the same. The receptacles should be filled two-thirds of their depth with clean crocks for drainage. The compost must be a substantial one; a suitable mixture is good fibrous loam, two parts, peat or Osmunda fibre, one part, and chopped Sphagnum-moss, one part, with a liberal quantity of coarse sand, finely-broken crock and charcoal, the whole well mixed together. Care must be taken when repotting not to injure the young growths; the base of the old pseudo-bulbs may rest just on top of the compost, which should be kept rather higher in the centre of the pan than around the rim, so that the flowers may show to the best advantage. Fix the bulbs firmly, planting them about 2 inches apart, and make a neat finish to the potting by clipping off any ragged ends. If new roots are being emitted before the plants are potted, extra care will be necessary in performing the work. After the plants are potted, great care will be necessary in affording water, for if the compost becomes too moist and close, the young, tender roots will not take kindly to it; but this does not obtain for long, and once they secure a good hold of the soil and the leaves begin to unfold, a liberal supply of moisture is needed. When in full growth, the plants enjoy plenty of atmospheric moisture, and, as with many epiphyll Orchids, a light, airy position is essential. Pleiones thrive best without much heat, but the cool house proper is not quite suitable for them. If a house having a cool, intermediate temperature is not available, the plants are best accommodated in the coolest part of the intermediate or Cattleya house. In this case growth will be very free, and care will be necessary to have the plants in flower at their proper season. Insects are not particularly troublesome to Pleiones, the worst pests being red spider and brown scale, but these may be easily kept under.

ONCIDIUM CHEIROPHORUM. This species is the prettiest of all the small-flowering and dwarf-growing members of the genus, also one of the most desirable of autumn and winter-flowering Orchids. Although the fragrant, golden blossoms are small, they are borne in great profusion, and closely together, on short, sturdy-branched racemes. The plant is easy of culture, growing well in pans, vigorous specimens with a crowd of racemes being very beautiful objects. *Oncidium cheiroporum* does well in a cool, intermediate house, and requires the same compost and conditions of moisture as the other dwarf members of the genus.

PLANTS UNDER GLASS.

By JAMES H. BROWN, Secretary of the Royal Horticultural Society, 1, St. James's Place, London, W.

HOUSING PLANTS AND RE-ARRANGING PLANT HOUSES.

At no time of the year is it necessary to exercise more thought and care on the disposal of the stocks of tender plants than now; and this is especially the case where, as often occurs, more plants are grown than can be easily housed during the winter. Sometimes it is necessary to utilise the fruit houses for other plants, but a fruit house should never be overcrowded, as this is most injurious both to the introduced plants and the legitimate occupants. A house which is intended for the accommodation of fruit is best reserved for this purpose; but, if the introduction of other plants is unavoidable, the fruit should always have the first consideration. There are many plants which can withstand a temperature just above freezing point; some will even survive a few degrees of frost without harm. We have, at Gunnersbury, for instance, a rough erection, by no means frost-proof, in which we winter our large Myrtles with great success. If necessary, Cordylines may be stored in a similar place, and also Sweet Bays. *Rhododendron* (*Azalea indica*), when at rest, may be safely kept in a place only just frost-proof; this applies also to *Nerium Oleander*. Some plants may be semi-pruned and stored away in a frost-proof erection; I have adopted this plan, on occasions, with a large specimen of *Rhododendron* (*Azalea indica*). Specimen Fuchsias, *Lantanas*, *Sparmannia africana*, *Lippia citriodora*, *Erythrina crista-galli*, and other deciduous greenhouse plants should be placed in a dark, or semi-dark, building; and care must be taken that none of these is ex-

posed during a frost, or immediately when a thaw sets in. If precautions are taken against this contingency, and the pots are well covered with dry straw litter, they should come to very little harm; but it should be noted that protection of the roots is most essential.

WATERING PALMS.—As stated in last week's Calendar, all Palms in a healthy condition require liberal supplies of water at the roots, and must never be allowed to suffer from drought. There is a danger, when the fires are being driven hard, to maintain the necessary temperatures, that the soil and atmosphere may become too dry, and this must be guarded against. One of the chief dangers resulting from dry conditions is the spread of insect pests. Feed the plants occasionally with suitable stimulants, the best of which, in my experience, is Standen's manure.

BAMBOOS. Bamboos may be regarded as companion plants to the Palms, and provide fine decorative subjects for the cool greenhouse and conservatory. They are easy of culture and specimens may be grown to a good size in pots or tubs of moderate dimensions. During the winter months they are very serviceable, on account of their light, graceful habit, as decorative plants, whilst for the embellishment of vestibules or halls they have few equals. During the summer season they may be made use of out-of-doors in the decoration of the flower-garden.

THE GREENHOUSE. The plants known best to gardeners as Azaleas, but which are now included under *Rhododendron*, are almost indispensable for greenhouse decoration in winter. The fashion nowadays is to grow small plants, and if these receive proper attention they will, in course of time, develop into useful specimens. They are best trained in a semi-pyramidal form, and it is easy to do this if the plants are attended to in an early stage. Most of them are grown as round bushes, but this form does not lend itself to growing the specimens on so well as the pyramidal type, while bushes require more room. Now is the best time to replenish the stock of Azaleas. They are imported without pots, and should be potted as soon as they are received from the nurseryman, after which they should soon become established. It is well to encourage root action at first by affording a little extra warmth, but afterwards the plants should be hardened to withstand the average greenhouse temperature. It cannot fail to be noticed that present-day varieties possess greater vigour than the older sorts, which is a very desirable feature. A selection of the best up-to-date varieties includes *Deutsche Perle*, *Ceres*, *Edmund Vervane*, *Hermosa* (all these are early sorts), *Niobe*, *Mme. Joseph Vervane*, *Apollo*, and *Souvenir du Prince Albert* (these being later varieties). Pay close attention to the watering of newly-imported plants, and, whilst avoiding an excess of moisture, do not allow the foliage to droop, as this will result in the weakening of the flower buds. Examine the general stock of these plants to see if thrips are present, and take the necessary measures to destroy them, if any are detected. Plants of such kinds as *Deutsche Perle*, that have been forced in previous seasons, will soon respond to a generous treatment and yield flowers during the dull season. The flowers of this variety remain fresh for a long time when cut, and it is the best white sort to grow for cut blooms. If a house can be set apart for the culture of such plants as *Bouvardias*, early-flowering *Acacias*, *Carnations*, *Eupatoriums*, *Lasiandra macrantha*, and *Jasminum*, the plants will furnish varied and large quantities of flowers at a time when they are most needed. The night temperature of such a house should be about 50°, with a drop of 5° the first thing in the morning. Although some growers devote houses entirely to *Carnations*, the plants may be grown in mixed collections such as I have indicated. It will be necessary to ventilate the house during the daytime on all favourable occasions, guarding continually against an excess of atmospheric moisture.

CROSS-BRED PINKS.—We have received photographs of two new Pinks—*Frankonia* and *Bavaria*—from Herr B. MÜLLERKLEIN, said to be crosses from perpetual-flowering *Carnations* and *Pinks* *Rose de Mai* and *Queen of the Market*. It is stated that cuttings of *Frankonia* rooted in June flowered on September 15.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for publication, as well as specimens of plants for names, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side of the paper, and on each, the name of the contributor should be signed in the margin. If desired, the signature need not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unsolicited communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, NOVEMBER 18—British Gardeners' Assoc. (London Branch) 4th Annual Con. at the "Art & Restaurant," 204, Strand, at 7.30 p.m.

MONDAY, NOVEMBER 20—Nat. Chrys. Soc. Executive Com. meet.

TUESDAY, NOVEMBER 21—Roy. Hort. Soc. Com. meet. (Lecture at 9 p.m. by Mr. E. White, on "The International Horticultural Exhibition, 1912.") National Vegetable Soc.'s Ann. Gen. Meet. at R. H. S. Hall, Westminster, at 2.30 p.m.

WEDNESDAY, NOVEMBER 22—Darlington Hort. Soc. Autumn Fl. Sh.

FRIDAY, NOVEMBER 24—Aberdeen Chrys. Sh. (2 days). Hawick Chrys. Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—42°.

ACTUAL TEMPERATURES.—LONDON.—Wednesday, November 15 (6 p.m.): Max. 58°; Min. 41°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, November 16 (10 a.m.): Bar. 29.5°; Temp. 57°. Weather—Dull.

PROVINCIALS.—Wednesday, November 15: Max. 50° Colchester; Min. 47° Lincoln.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, WEDNESDAY AND THURSDAY—English and Dutch Roses, Shrubs, Azaleas and Dutch Bulbs, at Stevens's Auction Rooms, 88, King Street, Covent Garden, London, at 12.30.

TUESDAY—Roses and Herbaceous Plants, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 12.30.

WEDNESDAY—Miscellaneous—Bulbs and Plants at 12; 4.20 cases Japanese Lilliums, at 2.30; Palms and Plants at 4, at 67 and 68, Cheapside, E.C., by Protheroe and Morris. Annual Sale of Fruit Trees at Platt Nurseries, Borough Green, Kent, by Protheroe and Morris, at 11.30.

FRIDAY—The "Underhill" Collection of Orchids, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 12.45.

The National Rose Society's Catalogue.

The National Rose Society is issuing to its members a new edition of the Society's official *Catalogue of Roses*. It is two years since the last edition appeared, and it is understood that the Society proposes in future to issue a new edition every alternate year. The catalogue does not aim at being an exhaustive list of all known varieties of the Rose, such as that published a few years ago by Mons. Jules Gravereaux, enumerating the Roses cultivated at l'Hay, nor is it even a list of those Roses in general cultivation, such as is to be found in the Society's pruning book, but the aim of the official catalogue is rather to give a select list of those Roses which for one reason or another are considered to be most worthy of cultivation by amateurs.

Thus it will be found that in each new edition a large number of the Roses mentioned in former impressions has been

omitted, and the place taken by newer varieties, which for the several purposes for which they may be used in the garden, are thought to supersede the older varieties. A comparison, therefore, of the two successive editions of the work forms a not uninteresting review of the development of the Rose.

The catalogue consists of 3 parts. After some 12 pages of introductory matter, 60 pages are devoted to a descriptive list of rather fewer than 600 varieties, then follow 20 pages in which these varieties are arranged according to the classes to which they belong, while the remainder of the book consists of selections of Roses for the various purposes for which these plants may be used. It is the first and the third parts—the descriptive list and the selections—that will be found to be of most general interest. Two new departures may be noticed at the outset; one is that the new Roses added to the catalogue, instead of being incorporated in the general list, are enumerated in sections at the end of the general list, the object probably being to indicate that these are still on their trial, and are not recommended with the same confidence as are those which are retained in the general list. The other is the appearance for the first time of the description "Austrian hybrid," as applied to Roses of the class of Rayon d'Or and Juliet, which cannot conveniently be described as Hybrid Teas.

Turning to the Roses that have been excised from the 1910 edition, we find that some 70 names in the 1910 catalogue fail to appear in that of 1912. Of these no fewer than 24 are Hybrid Teas, 20 are Tea-scented Roses, 16 are H.P.s (or including synonyms, 19), 5 are Polyantha Pompons, 2 Noisettes, 2 are Wichuraianas, and the remainder come under various headings.

The places of these excluded Roses have been supplied by about 100 new varieties, for the most part introduced to commerce in the years 1909, 1910 and 1911, of which no fewer than 60 belong to the class of Hybrid Teas. Beside these there are 13 new Wichuraianas, 6 Tea-scented Roses, 6 Austrian Hybrids, together with 6 other Roses previously grouped under other descriptions, now brought into place under this section; 4 Polyantha Pompons, only 3 Hybrid Perpetuals, and the remainder of various denominations. The result is a considerable addition to the ranks of the Hybrid Teas, so that the members of this group, notwithstanding the number removed from the catalogue, now reach some 210 varieties, while the Wichuraianas amount to 40, making, with the 24 multifloras recommended in the catalogue, 64 modern climbing Roses. On the other hand, the Teas have decreased from 96 to 83 and the Hybrid Perpetuals from 74 to 58. In connection with these changes Tea Rambler now appears in the multiflora section, while Hiawatha has been transferred from this section to that of the Wichuraianas, alterations which are amply justified by the habit of growth of these varieties in our gardens.

In the selections of Roses for various purposes considerable changes have been made. Selection depends so much on individual taste and preference that it would be easy to criticise the separate lists, but criticism is not so much the object of this article as to notice the changes that have commended themselves to the Society. Taking, for instance, the selection of Roses for general garden cultivation, a matter of special interest at planting time, the following Roses, recommended as specially suitable for this purpose in the 1910 catalogue, have maintained their position: Antoine Rivoire, Caroline Testout, Commandant Felix Faure, Frau Karl Druschki, Gustav Grunerwald, Joseph Hill, Lady Ashtown, Mme. A. Chatenay, Mme. Jules Grolez, Mme. Melanie Soupert, Mme. Ravary, Mrs. John Laing, Pharisier, Prince de Bulgarie and Richmond. Those excluded comprise The Earl of Warwick, G. Nabonand, Grand Duc A. de Luxembourg, Hugh Dickson, La France, Mrs. R. G. Sharman Crawford, Ulrich Brunner, Viscountess Folkestone and White Maman Cochet, and the place of these Roses is now taken by Dorothy Page Roberts, Earlate, Florence Pemberton, General MacArthur, Mme. Antoine Mari, Mme. Leon Pain, Mrs. E. G. Hill, Mrs. Theodore Roosevelt, and Sulphurea. The general result appears to be to substitute for the fuller and more heavily-petalled Roses, which find favour with exhibitors of specimen flowers, thinner and rather looser Roses which open more readily, flower more freely, and so present a brighter and more continuous effect of flower in the garden.

The selections of bedding Roses also show many changes, but it is not a little remarkable that they contain not a single Tea-scented Rose, a class which provides us with some of our very best and most continuously floriferous bedders.

This edition contains no fewer than 21 lists of selections for different purposes; in fact, it would be difficult to find any purpose to which the Rose is put, for which the most appropriate Roses are not named. It is perhaps a sign of the times and of the popularity which rock-gardening in its many forms now enjoys in this country that, for the first time, a list of Roses suitable for rock work is included. The Roses selected for this purpose are naturally of dwarf habit, and many of them are such as are classed under the head of species, being wild Roses of this or other countries. Many of these have become accustomed under natural conditions to do well in sandy or comparatively poor soils, and are therefore well suited to the conditions of the rock garden where modern garden Roses, accustomed to rich beds and borders, would soon look shabby and unhealthy.

Another indication given by the new catalogue is the increasing interest and attention bestowed upon the summer-flowering climbing Roses of the multiflora and Wichuraiana groups. This, again, is no more than might have been expected,



Photographs by H. N. King.

LEONARDSLEE, HORSHAM, THE RESIDENCE OF SIR EDMUND LODER, BART.

for the readiness with which these Roses lend themselves to decorative effect during their period of flowering and the brilliant results attained with them by the nursery-men at the shows have brought them into much favour with the public. The popularity of this group among owners of gardens has also increased since it was found that they are of easy culture and capable of employment in many different fashions. But those who look to the future will not be content with Roses that are, after all, only summer-flowering. It is true that by the inter-mixture of early and late flowering varieties a blossoming period of some two and a half months may be obtained and that some of the Wichuraianas do produce a few autumn flowers, but they are very few and the supply is poor and intermittent.

Let the rosarian but carry his thoughts back to 10 or 15 years ago, when for autumn flowers out-of-doors he had to seek the Dahlia, which perished with the first frost, or the hardy Chrysanthemum, too soon battered by the autumn gale, and then look in his garden to-day, when, in the middle of November, he may gather a bowl of Roses of the beautiful and fragrant Richmond from plants that have never been without blossom since early June, or he may now cut vases of Lady Battersea, Pharisæer, or Mme. Maurice de Luze. Let him note the advance that has been made with Hybrid Teas and refuse to be satisfied till he gets a perpetual climber. There are already promises of its advent. The hardier Noisettes, Aimée Vibert, Alister Stella Gray, and Wm. Allen Richardson have been cultivated for a long time, and Morgenroth and Sheilagh Wilson are steps in the direction of a perpetual Carmine Pillar, while Trier, of multiflora origin, is a true perpetual, though not much of a climber. Moreover, the pink and white varieties of Rosa Pissardi are autumn-flowering climbers. Of Sylvia the catalogue of 1912 tells us that it is a Wichuraiana flowering in both summer and autumn, and, moreover, a vigorous climber. If the promises held out to us are well founded it will indeed be an acquisition, and we may at least hope that another edition of the catalogue may show Sylvia to be but the forerunner of a goodly company of really perpetual-flowering climbers.

SUPPLEMENTARY ILLUSTRATION. Woodland scenery is never more beautiful than in autumn, when the foliage puts on the rich tinting that foretells the approaching winter. But even in winter the woodland is made beautiful by the Conifers and other evergreens, which provide rich greenery all the year round, whilst Rhododendrons planted as undergrowth have a double charm, brightening their surroundings in winter with their glossy leaves, and in spring painting the woodland with flowers. At LEONARDSLEE, the beautiful Sussex home of Sir EDMUND LODGE, Bart., Rhododendrons grow in wild profusion, as may be seen from our Supplementary Illustrations, reproducing themselves from seed wherever allowed to do so. Those who have not the opportunity of visiting this noted garden may find the same thing obtaining in the woods and coverts of Richmond Park, where the seedling Rhododendrons may be counted in thousands.

ROYAL HORTICULTURAL SOCIETY.—The next meeting will be held on the 21st inst. At 3 p.m. a lecture on "The International Horticultural Exhibition, 1912," will be delivered by Mr. EDWARD WHITE.

BIRMINGHAM CHRYSANTHEMUM SHOW.—A further note from Birmingham states that a Gold Medal was awarded at the Chrysanthemum Show to Messrs. THOMSON & Co., Birmingham, for a non-competitive exhibit of vegetables.

SOUTHAMPTON ROYAL HORTICULTURAL SOCIETY.—In order to mark the society's Jubilee next year, it has been decided to hold a Rose Show at Southampton on June 26, under the auspices of the National Rose Society, and a great Jubilee Show and Gala during the third week in July, probably on the 16th and 17th of the month. The exhibition will include the usual Carnation and Sweet Pea Show, and there will be sections for fruit, miscellaneous plants, flowers, and vegetables. The autumn show will be held as usual in November. At the meeting when these arrangements were made, the secretary read a list of those who have promised their patronage and special prizes, including a 15 guinea trophy from the Hon. Mrs. YORKE to be offered for a display of Roses.

ROYAL SOCIETY OF ARTS.—The Royal Society of Arts opened its 158th Session on Wednesday, November 15, with an address from Lord SANDERSON, G.C.B., the Chairman of the Council. Five meetings are announced before Christmas, and four Cantor lectures on "The Carbonization of Coal" will be delivered by Professor VIVIAN LEWES. The list of papers for the meetings to be held after Christmas includes "The World's Decreasing Timber Supplies," by Mr. JOHN NESBIT, late Conservator of Forests, Burma, and "The Manufacture of Nitrates from the Atmosphere," by Mr. ERNEST KILBURN SCOT.

HONOUR FOR A TOWN GARDENER. In recognition of 33 years' service in the public gardens at Epsom, Mr. JOSEPH SMITH was recently presented at the Town Hall with an illuminated address and a purse of gold by the Mayor. Amongst other work under Mr. SMITH's direction is the care of some 10,000 street trees.

PRESENTATION TO A SECRETARY.—Mr. ANGUS MCKINNON, secretary of the Machen Flower Show, and Miss MCKINNON have received presentations from the members and friends as expressions of their appreciation of the services rendered to the society.

L.C.C. AND BOY GARDENERS.—At the weekly meeting of the London County Council, on November 7, the Parks and Open Spaces Committee stated that their attention has been directed to certain unsatisfactory features in the conditions of employment of boy labourers in the Council's parks and open spaces. Under the existing regulations, boy labourers are employed between the ages of 14 and 16 years, their rate of pay being 2½d. an hour whilst under 15 years of age, and 3d. an hour on and after that age. When 16 years, the boys are, as a general rule, discharged. If there should be a vacancy when a boy reaches the maximum age for boy labourers, he may, in the event of his showing sufficient aptitude, be promoted to the rank of improver, at the wages of 14s. a week, rising to 24s. a week, by two annual increments of 2s. a week and two annual increments of 3s. a week. The number of vacancies is, however, very small, and it has only been possible to retain in the service a small proportion of the boy labourers employed. To meet this difficulty as

far as possible, and in order to secure to the lads a measure of training which should qualify them ultimately for the position of gardener in the Council's service, they now submit a scheme for utilising the services of all the boys engaged, subject to satisfactory conduct, first as improvers and ultimately as gardeners. The scheme provides for the employment of boys as boy labourers for four years, instead of two years, as at present, for their promotion to the rank of improver on attaining the age of 19 years, in which capacity they would serve five years, three years in the second class and two years in the first class, and, ultimately, at the age of 24 years, for their promotion to the rank of under-gardener. The Committee consider that the promotion of an improver from the second to the first class should be subject to his passing, in the first or second class, the public parks examination held by the Royal Horticultural Society, and that the promotion of an improver to the rank of under-gardener should be subject to his passing the examination in the first class. They recommend that the boys be paid 10s. a week until they attain the age of 15 years, subsequently rising each year by 2s. a week to 18s. a week; second-class improver, 21s. a week; first-class improver, 24s. a week. Under the scheme for the employment of boy labour, approved on July 27, 1909, boys under the age of 18 years are required to attend education classes, facilities to attend such classes being given for a period not exceeding six hours a week, and the Parks Committee think that, in the event of the scheme now presented being approved by the Council, similar facilities should be afforded to boy labourers and second-class improvers, i.e., all those under 22 years of age, the regular hours of duty at parks being 54 in the summer and 48 in winter. The Education and Establishment Committees concur in the proposal, and, in the event of the scheme being approved by the Council, arrangements will be made for the boys or men in question to attend suitable classes free of charge. The average number of vacancies in the gardening staff at the Council's parks and open spaces is 18 a year, and the Committee were of opinion that six of these vacancies should be reserved for the absorption of boy labourers, of whom they propose that four should be nominated each year by the Education Committee from boys in the Council's elementary schools. The Park Committee's proposals have since been adopted by the Council without discussion.

L.C.C. PARKS EMPLOYEES.—In March last the London County Council decided that all employees should, unless otherwise ordered by the Council, have the equivalent of one complete day's rest in seven. The Parks and Open Spaces Committee, however, have not found it practicable to dispense with the employment on their leave days of a portion of the staff under their control. During the two weeks ended October 11 and 18, the number of employees engaged for a part of their leave days was 203 and 194 respectively. The Committee have been in communication with the General Purposes Committee with regard to the difficulties which they have experienced in carrying out the regulation, and the question of re-organizing the staff in such a manner as will have the effect of minimising the employment of men on their leave days is engaging their attention.

THE GARDENS OF ENGLAND.—The Hon. HENRY W. MCLAREN, M.P., in opening the Hinkley Chrysanthemum Show on the 3rd inst., said that he did not think there was another country in the whole world in which greater interest was shown in gardens than in England.

One might travel all over the Continent, but nowhere could be seen the number of large gardens and cottage gardens that are characteristic in England. In French villages there was either no garden at the back or front of the houses near to the street, or the gardens there were entirely devoted to vegetables. But in Britain it was not necessary to go to the most favourable parts of the country to find lovely gardens; they existed even in the manufacturing districts of Staffordshire and Lancashire.

SWEET PEAS IN THE TRANSVAAL.—The popularity of the Sweet Pea seems to be assured wherever it is cultivated. At the recent show of the Transvaal Horticultural Society held at Johannesburg, a prize of £20 was offered for the best 12 sprays. In order that the conditions should be equal for exhibitors from all parts of the country the exhibits were required to be posted two days before the show. In consequence many flowers suffered, but the desired object of securing equal conditions for growers over a wide area was attained. The 1st prize was awarded to Mrs. A. COOTE, Parkview, who staged a dozen sprays, each bearing four blooms of fine size and colour. Mrs. C. B. LLOYD, of Highlands, Natal, was awarded the 2nd prize. There were 200 entries.

JOURNAL OF THE PARIS CHRYSANTHEMUM COMMITTEE.—For some years past this committee has issued annually a *Journal* containing a résumé of the past year's work. The volume for 1911 is quite equal to its predecessors, and is a large octavo, of 170 pages, containing a large amount of information relating to the flower. There are illustrations also of the Paris Show last year, and among other contents of interest to members may be mentioned the lists of the officers of the committee, members of the floral sub-committee, various notices, annual report of past year's work, revised list of best Chrysanthemums for various purposes, schedule, list of prize-winners at last show, report of show and international conference, with text of papers then read and discussion that ensued, reports of local shows, and, finally, list of members of the committee.

THE RIVIERA FLOWER-TRADE.—The statistics for the past year, as quoted in *La Tribune Horticole* (October 23), give the export of cut-flowers from Nice as 7,550 tons (French), of the value of upwards of one million pounds sterling. Some 18,500 persons are employed in this trade in the environs of Nice, and one consequence of the enormous demand for labour in connection with this industry is that general agriculture suffers not inconsiderably.

TEA CONSUMPTION IN RUSSIA.—That the Tripolitan war should have an effect on the tea-drinking habits of Russians is not at first sight very obvious. Nevertheless, as a correspondent points out in the *Standard*, this is the case. Thus, the Russian loves to drink his tea with Lemons. The supply of Lemons to Russia enters that country by Odessa, and comes from S. Italy. In consequence of the war there is an absolute dearth of supplies, and hence the Russian drinks his tea with grumbling but without Lemons.

"JARDINAGE." This is the title of a new monthly periodical devoted to gardening. It is printed in French, and is edited by M. GEORGES TRUFFAUT, of Versailles. The style is commendable, and the printing is well executed; the illustrations also are of a high order of merit. The cover bears a coloured illustration, and altogether the new monthly promises to be artistic, practical, and interesting. The list of authors in the first number comprises Messrs. GEORGES TRUFFAUT, JULIUS VACHEROT, PH. DE

VILMORIN, and GEORGES BELLAIR. The subscription outside France is 6 francs per annum, and the office of our new confrère, to whom we wish success, is 90 bis, Avenue de Paris, Versailles.

PUBLICATIONS RECEIVED.—*Fifty Useful Metric Equivalent Tables.* (The Central Translation Institute, 16, Esplanade, F.C.) Price 6d.—*Among the Hills*, by Reginald Farrer. (London: Headley Brothers, Bishopsgate.) Price 12s. 6d. net.—*Bulletin of Popular Information*, No. 13, Arnold Arboretum, Harvard University. (Jamaica Plain, Mass., U.S.A.)—*North of England Horticultural Society's Monthly Magazine and Circular for October.* Secretary, Rev. J. Bernard Hall, Rawdon, Leeds.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE RECENT R.H.S. FRUIT EXHIBITION.—Far too much was made at this great show of the recently-introduced Apples obtained from crossing Peasgood's Nonesuch with others, the seedlings including, amongst others, Rival, Houbion and Coronation. We have a good many excellent varieties for dessert that are fit for use at the same season as those mentioned, superior in flavour, and of a more suitable size for the dessert. The crosses from Peasgood's Nonesuch have excessively large fruits and they are dry and spongy. If we could only get some good varieties that would ripen at the same time as Northern Spy, Fearn's Pippin, Lord Burghley, and Court-pendu-plat, we should perhaps help to steady down the enormous quantity of foreign Apples, but we shall have to have them with a flavour approaching to that of Newtown Pippin, as imported. G. F. H.

MARKET GROWING AND LOW PRICES.—*F. B.*, on p. 319, has called attention to a serious state of affairs in connection with market-gardening. The decline of the industry is of no recent date. It began many years ago, when ordinary farmers, to an increasing extent, became growers of plants of the Cabbage tribe and others on a large scale for market. Next a great increase in the number of allotments converted hundreds of thousands of buyers of vegetables into producers, who sell vegetables not required for their own use. As small holdings become multiplied, the position cannot fail to become worse and worse. As *F. B.* points out, only those small producers who can sell their produce by retail get a fair living by market-gardening, and if their number is to be greatly increased, competition with one another is likely to become ruinous. I pointed this out when the Small Holdings Bill was introduced. Although in favour of an increase of small holdings, I cannot ignore the fact that too great an increase will lead to disaster, unless some better method of distribution than the existing one can be devised. The point as to the high prices charged by greengrocers and fruiterers causing artificial gluts in the markets by checking the consumption has often been raised by me. A kind of "vicious circle" is created. By checking consumption by means of high prices, the retailer causes gluts in the markets, which enable him to buy at prices barely, if at all remunerative to producers. But this is not the only disadvantage the producer suffers who sells in the wholesale markets. He has no proof that he gets what his produce makes, but has to accept whatever his salesman thinks proper to return to him. The commissioner salesman is in a position which no man should be allowed by law to occupy. The defence of retailers is that if they adopted the system of small profits and large returns, their expenses would be greatly increased, perhaps unprofitably. A greengrocer, for example, would need to keep an extra horse and cart and to employ an extra carter. The system by which produce is conveyed to consumers is also an excuse for the high profits of retailers. A man with a car is sent round to customers to obtain orders, and then a second time to deliver produce to the value of only about 6d. to many a customer. So long as housekeepers will have goods brought

to their doors, they must pay comparatively high prices. The only remedy for a state of affairs which prevents producers of vegetables and fruit from obtaining remunerative prices for their products is some plan of supplying consumers directly, but this is most difficult to arrange, even by co-operation. The great markets which exist in the Midlands and the North, but very rarely in the South of England, and helps producers who have stands in the markets. But it is doubtful whether the great majority of housekeepers would patronise such markets, if established where they do not now exist. In some places they have been tried, and have failed. *A Southern Grower.*

MECONOPSIS INTEGRIFOLIA.—To the best of our knowledge, all the seed of *Meconopsis integrifolia* sent home by our collector, Mr. G. Forrest, also the plants and seed distributed by Messrs. Jas. Veitch & Sons, are of the type represented in your Supplementary Illustration of November 11, that is with incurved petals and slightly nodding flowers. The southern form referred to in your note as possessing a widely-expanded corolla has not come under our notice; but in 1900 Mr. A. K. Bulley received from the Koslov Expedition a packet of seed labelled *M. integrifolia*, from which plants were raised and which flowered at our Neston nursery late in the summer of 1904. These plants had larger blossoms than any *M. integrifolia* we have since seen and the fully-expanded flowers were held erect on stems which, to the best of our recollection, were more densely clothed with longer and more silky hairs. The foliage also was decidedly more hairy than that of the plants now in cultivation. An illustration of this plant appeared in *Flora and Sylva*, 1905, p. 80. Some correspondence took place in your columns in reference to the differences between the two forms, and eventually the Neston plant was (rightly or wrongly) named *M. pseudo-integrifolia*. Unfortunately this magnificent form is lost to cultivation for the present. Notwithstanding assiduous care in cross pollinating the flowers, both under glass and in the open, they failed to set seed, although, in several cases, capsules were formed which contained ovules having the appearance of sound seed. Admirers of *Buddleias* may be interested to know that a species collected for us by Mr. Forrest has been determined as *B. lichiangensis*. *Bees, Limited, Liverpool.*

POTATOS FOR AUSTRALIA.—We were pleased to see by your article on "Potatos for Australia," p. 340, that there was a prospect of again doing business with that country. This morning, however, we have received the following letter from the Board of Agriculture, which practically closes the door. *Dobbie & Co.*

Board of Agriculture and Fisheries,
4, Whitehall Place,
London, S.W.

November 10, 1911.

Gentlemen,—I am directed by the Board of Agriculture and Fisheries to advert to your letter of the 23rd ult., addressed to Mr. W. S. Douglas, and to acquaint you that the certificate to which you refer as being required in respect of Potatos imported into Australia must, in accordance with the Commonwealth regulations, be dated and signed by a responsible officer of a Government Department of the country of origin, who must identify the Potatos, specify the quantity, and certify that the Potatos have been inspected and have been found free from the ordinary Potato disease and wart diseases, that they were grown in the country named, that they were grown in premises known, after due investigation, not to be or to have been during the previous 12 months infected with either of the said diseases, and that they were packed in the country of origin in clean new packages. The Board regret that, in view of the widespread distribution of the ordinary Potato disease in this country, it would not be possible for them to give a certificate that the disease was not present in Mr. Bryce's farm last year.—I am, Gentlemen,

Your obedient servant,

(Signed) T. H. ELLIOTT,

Messrs. Dobbie & Co. Secretary.
November 12, 1911.

GIVE THE JOURNEYMAN A CHANCE!—I should like to ask head gardeners and foremen, through the medium of the *Gardeners' Chronicle*, why journeymen are but seldom allowed to assist with the pruning of vines, Peaches and other indoor fruit trees at this time of year? It seems to be the rule in most places for the foreman to do all the pruning and the journeyman only to clear up afterwards. Surely, under the supervision of the foreman, an under gardener could be trusted sufficiently to assist in this important work. I have always been under the impression that practice is better than theory. *A Royal Journeyman.*

HOGG'S "FRUIT MANUAL." (see pp. 272, 294, 341).—It would be a pity, I think, to omit any varieties of fruit, however undesirable, from any revision of this work. Many persons like to identify and see described the fruits of old trees not used for market purposes. As to Mr. Edward A. Buxard's "counsel of perfection," its adoption, however valuable, would render a new edition too costly, cause much delay in bringing it out, and render the selling price too high for many who might wish to purchase a copy. *A Southern Grower.*

RHUS TOXICODENDRON (see p. 310).—I am under the impression that Mr. T. Smith's supposition is right, and that there are two plants doing duty for the one name. Here we had *Rhus Toxicodendron* and *Amelopsis japonica* growing on the same wall facing north. The *Rhus* I was requested to destroy for fear of any accident, but the *Amelopsis japonica* was allowed to remain, and is still in good condition. The two plants were quite distinct in character. *A. japonica* is much slower in growth and makes stronger wood, and the autumn colouring of the leaves is very superior to the *Rhus*. The *A. japonica* here was obtained from the late Earl of Annesley, of Castlewellan. I have also had the same plant from Messrs. Dicksons, of Chester. *Frank Bedford, Stratford House, Garsington, Oxon.*

THE PROTECTION OF CROPS.—May we, through your columns, remind readers who are interested in the Protection of Crops Essay competition, announced in your advertising columns some little time ago by the Royal Society for the Protection of Birds that essays should be sent in during the first week in December? It will be remembered that the society offer a silver medal and prizes of five guineas and two guineas for essays on the best means of guarding agricultural and horticultural produce from the attacks of birds, without destroying the birds. It is hoped that many suggestions of practical utility will be received and subsequently published. *L. Gardiner, Secretary, R.S.P.B., 5, Queen Anne's Gate, S.W.*

DOUBLE STOCKS.—No one who has written about double Stocks appears to know very much about them as they were raised 50 years ago. I was told to select seeds from the flowers having five petals, and the resulting plants were mostly double. At that time the various clubs used to walk, and it was the ambition of every walker to wear a longer spike of Brompton Stock than his neighbour. Later, I endeavoured to see the old Brompton Stock again, and got some seed from the neighbourhood of Birmingham for that purpose. I was assured that the seeds sent were the real Simon Pure, and no doubt they were, for not one ever grew! *T. Smith, Newark.*

WINTER-FLOWERING BEGONIAS. The beautiful winter-flowering Begonia introduced by Messrs. James Veitch & Sons, are doubly welcome, because not only are they valuable for indoor decoration, but they will provide variety in the Begonia classes at the November shows. One gets tired of seeing Gloire de Lorraine in such quantities year after year. The flower-show schedules should require six winter-flowering Begonias to include not fewer than three distinct varieties. This might be gradually increased to six distinct varieties. A batch of Begonias of the socotrana strain staged at the November shows would create a pleasing change, and no doubt be the means of extending their cultivation. *A. D.*

SOCIETIES.

PARIS AUTUMN SHOW.

NOVEMBER 3-13.—M. Fallières, President of the French Republic, opened this annual exhibition of the National Horticultural Society of France on the Cours-la-Reine, Paris on the 3rd inst. There was a very large display of fruit, flowers, vegetables, and horticultural sundries there being between 300 and 400 entries. The jury comprised 45 members, and was divided into 16 sections. The Floral Committee met on the 2nd inst. to examine the new seedlings and award certificates.

Grand prizes of honour and other special prizes were given by the President of the French Republic, the Ministers of Public Instruction and of Agriculture and others. The premier awards were as follows:—1st Grand Prix d'Honneur to M. NOMBLOT-BRUNEAU for fruit and fruit trees; 2nd Grand Prix d'Honneur to M. PINON for trained Chrysanthemums. Other Prix d'honneur were awarded to Messrs. CORDONNIER for Grapes, to M. DEJARE for floral decorations, to M. CALVAT for seedling Chrysanthemums, and to M. BERANKE for stove plants.

The show was approached through an ornamental gateway leading to a long promenade that extended to the door of the exhibition building, a large, temporary structure, about 400 yards long, covered with canvas. This promenade was an important feature of the show, being decorated with groups of hardy ornamental shrubs and trained fruit trees. In addition, to the right of the promenade and around the outside of the exhibition building, were arranged the numerous exhibits of horticultural sundries.

The principal exhibitors of trees and shrubs in the open were Messrs. MARTIN-LECOINTE, BARRETT, PAUL LEBLANC, ROBERT LEBLANC ET FILS, NOMBLOT-BRUNEAU, KIEFFER ET FILS, A. MONGERIE and MOUTRIER ET FILS.

FRUIT.

The principal doorway led to an ante-room, in which, on tables arranged round the sides, was a large and varied collection of Apples and Pears staged by M. OPOIX, of the Luxembourg Gardens. Handsome semi-circular piles of choice fruits were arranged at intervals with other fruits in pretty baskets decorated with coloured ribbon. Amongst the Pears were Le Lectier, Belle Angevine, Beurré Clairgeau, Catillac, Chas. Ernest, Beurré Diel and Doyenné d'Hiver.

A special feature of the show were the very large exhibits of Apples and Pears. M. DESCHAMPS arranged a collection in glass cases, with the addition of Grapes Gros Colman, Muscat of Alexandria, Black Alicante, Plums and Peaches. M. MASLE had a fine exhibit of Passe Crasanne and Doyenné d'Hiver Pears. Apples and Pears were also shown by the ECOLE HORTICOLE DE PLESSIS-PIQUET. M. H. LEQUEU showed Pears in boxes, four in a row, 25 feet long, principally big fruits of Duchesse d'Angoulême, Belle Angevine, Doyenné du Comice, Beurré Diel, Passe Crasanne, and Beurré d'Arenberg.

Yet a few other exhibitors of hardy fruits deserve a word of mention. Abbé BELLIERI had Apples and Pears; M. L. GROSUS showed, in pyramids and low stands intervening, very fine Apples and Pears Passe Crasanne, Olivier de Serres, Canada and Calville; M. DUCLOS showed immense pyramids of Pears; Messrs. CROUX ET FILS set up two very long tables draped with olive-green hangings, the fruit being staged principally on plates; the design of the whole was excellent, and each table measured about 40 feet run. Apples, Pears and Grapes were the chief kinds of fruits in this exhibit.

M. LOUIS RIBET had an imposing display of Apples and Pears alternately staged in very large semi-circular pyramids of 8 to 13 rows of fine fruit in each, with others in flat baskets. Here again Pears were of an immense size, especially Passe Crasanne, Beurré Diel, Doyenné du Comice, Doyenné d'Hiver and Beurré Clairgeau. M. A. LE DOUX filled two glass cases with Apples and Pears, and among other exhibitors may be mentioned Messrs. TH. ROUSSEL, GERBOUT, A. PESTIER, RIGGS, FLORENAUD, LOUIS HOT, COCHARD, CHARLON, ARNOUX, PÉRIER, COSDAU and last, but not least, NOMBLOT-BRUNEAU, to whom was awarded the Grand Prix d'Honneur.

At the beginning of the great show hall was a pergola formed of vine branches, with festoons of vine foliage, under which Messrs. SALOMON ET FILS, of Le Havre, arranged a series of glass cases containing Grapes of all kinds. It was an artistic show and an object lesson to Grape growers. Messrs. DUPONT-BARBIEU filled show cases some 60 feet in length mainly with Grapes, Peaches and Pears.

Close by were other exhibits of this nature from Mme. MARIE AUCLAIR, Messrs. GIRAULT-MAGNES, TESSIER, MERCIER, MASLE, and BÉGIN, while at the far end of the show Messrs. WHIR, HAMEL PÉRIEUX, EUG. LIQUET, and the SYNDICAT DE VITICULTEURS DE THOMERY had exhibits of Grapes.

Messrs. CORDONNIER ET FILS, of Baillieux, always show Grapes finely, and this year they staged along one side of the great hall a series of ornamental plate-glass cases filled with choice hothouse fruit of various kinds. Grapes Gros Colman, Muscat of Alexandria, Forster's Seedling and Black Alicante were shown superbly in their beautiful setting. Another case contained choice bunches of white varieties only, such as Minister Viger, Abel Chatenay, Prof. Ravaz and Pierre Méguin.

CHRYSANTHEMUMS.

The collection of seedling Chrysanthemums have to-day far less interest for English readers than formerly, and we pass them over as being chiefly staged by such growers as Marquis DE PINS, Messrs. CALVAT, CHANTRIER, VILMORIN, BACQUÉ, NONIN, and a few others.

There were some very interesting collections of cut blooms, by far the best being the various exhibits staged by Mr. Thomas Stevenson, from the gardens of E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey; the collective group faced the principal entrance. The awards he received were enumerated in the last issue (see p. 339). The blooms exhibited were of fine quality and of far greater merit than anything else of the kind in the show.

Some very good cut blooms were shown by M. PAUL L'ABBÉ in a smaller collection. Exhibits also came from M. CH. GÉRAVIS, M. LOUIS LEClerc, and M. HENRI CREPIN. The latter exhibitor took great pains to arrange his collection in a bed on the ground level, making a most attractive display. He showed in the class for 75 cut flowers, and arranged the flowers rather loosely in oblong form, with a few pot plants in the middle, including *Salvia splendens* and *Musa*, the whole being edged with *Achyranthes*.

Other exhibitors, including Messrs. VERNIER FRÈRES, LEVEQUE, FERON, LAVEAU, LACROIX, and DUPONT, showed cut blooms in variety. The Henri Crepin Challenge Cup was won by Messrs. ZIMMERMANN ET FILS.

The largest groups throughout the show were composed of pot plants of Chrysanthemums, and in this respect Messrs. VILMORIN, ANDRIEU & Co. made a grand display. They had several immense parterres filled with trained specimens of very large proportions, and in a variety of forms, the square-shaped pyramid and the circular pyramid being, perhaps, the more frequent. These parterres were enclosed within a raised turf border, an inner edging of dwarf plants of Dr. George Barrie and Gerbe d'Or, in one case, and in the other a similar double-row edging of Ville d'Avranches and Gerbe d'Or. The third big group was composed almost exclusively of bush plants, comprising novelties of the year. Some new seedlings also adorned the larger groups, being placed effectively in little batches of cut blooms at the extremities. We noted among them Sonate, Opera, Allegro, Andante, Harmonie, and Symphonie.

Pot plants were also shown by Messrs. LAZARD, LECOINTE, MORIS, MERIGNON, PINON, CREPIN, and MASCAUX. M. AUG. NONIN staged two long groups, among which were noted, in decorative, Bordeaux, Marocain, Chrysanthémiste Tondelier, and some good singles named Oiseau bleu, Cote d'Argent, Fontarbie, and Hendaye, all promising varieties. Other remarkable exhibits of pot plants may be briefly referred to. There were some capital plants of Chrysanthemums from the ECOLE HORTICOLE DE PLESSIS-PIQUET, very well flowered, and neatly edged with the yellow pompon Gerbe d'Or. We noted Réverie, Soleil d'Or, C. Schwarz, Marie Dufour, L'Africaine, Alb. Mauméné, and others.

M. MARCHEUX was also the exhibitor of a group of plants, but the most striking feature were blooms of *Emblème Poitevine*.

M. PINON staged, in several large beds, an infinite variety of pot plants, trained in many forms—pyramid, bush, standard, baskets, stars, a round table, pagodas, &c., making a novel display; they were nearly all single varieties. He also showed, in a side border, standards of *Globe Rose*, Mrs. W. Wells, Mr. T. Carrington, Tokio, Edward VII., Mrs. Luxford, and others.

MISCELLANEOUS FLOWERS.

Flowers other than *Chrysanthemums* were freely shown. Almost the first exhibits on entering the show was one by M. GYO. BOUCHER, who put up a group of *Clematis*. We noted *Nerxes*, Ville de Paris, *Venosa*, Mme. Grange, *Gipsy Queen*, Mme. Van Houtte, Ville de Lyon, M. Hope, and others among the more attractive varieties.

M. TABAR had a small collection of *Gerberas*; Messrs. MILLER displayed a group of striped single *Dahlias*, showing very large blooms. *Dahlias* were also shown by several other well-known growers. A *LA PENSÉE* sent *Cactus* and decorative *Dahlias*, the cut blooms being laid flat in green moss—not by any means a desirable mode of presentation. Messrs. C. ANGEL ET FILS showed *Dahlias* in a more pleasing manner; but by far the most important exhibit of these flowers was shown by Messrs. CAYEUX & LECLERC, who had two large, double-faced, sloping banks of *Cactus* and decorative varieties. A few *Begonias Claire de Lune* and early *Chrysanthemums* contributed variety. *Carnations* were shown by several exhibitors. Messrs. STUART LOW & Co., Bush Hill Park, Enfield, had a neat collection, staged in good form. We noted *Rose Dorée*, *Royal Purple*, *Rival*, *Mikado*, *Beacon*, *Britannia*, *Fire Glow*, *White Enchantress*, Mrs. Burnett, *White Perfection*, and several varieties of similar character. In M. NONIN's big display we noted *Carnations* on one flank. Messrs. LEVEQUE ET FILS, as is the invariable rule at the Paris Show, showed some capital examples of their new *Carnations*. Tuberous-rooted *Begonias*, brilliantly displayed on sloping banks, were well shown by the well-known firms of Messrs. VALERAND and BILLARD.

THE MAISON FÉRAUD put up a little square bed of *Cyclamen*. There was a good exhibit of *Hydrangea hortensis* from M. AUG. NONIN; he staged the varieties *Radiant*, *Vieux Chateau*, Mme. Emile Mouillere, and *Bouquet Rose*, with fine heads of bloom. M. FONTENEAU showed *Lilium speciosum* in variety, together with well-flowered plants of *L. auratum*, *L. tigrinum*, and *L. longiflorum*. In addition, he showed a collection of Japanese dwarf trees.

THE MAISON FÉRAUD, within a *Primula* edging, staged in a pretty bed a collection of single *Chrysanthemums*, varied in style. Snowdon, Mary Richardson, Donald Ferguson, and Lady-smith, with a white sport from the latter, predominated. This sport, named *Le Garennois*, does not appear to be of exceptional interest, the parent variety being, in our opinion, of infinitely greater decorative value.

The side room allotted to stove plants and Orchids did not contain a very large display. Mr. EDWARD V. LOW, Vale Bridge, Haywards Heath, showed a collection of *Cypripediums*. Messrs. MARON ET FILS showed in their group *Cattleyas* and *Laelio-Cattleyas*. M. BERANEK had a group of exotic *Palms*, *Codiocums* (*Crotons*), *Dracenas*, *Cattleya labiata*, and other plants. M. REGNIER exhibited a small group of *Habenaria* *Regnierii* and *H. militaris*.

Floral art was well represented by several choice exhibits. M. GEORGE TRUFFAUT had a splendid decorative exhibit of *Roses* in vases, on a circular lawn, with another on a high pedestal in the middle. M. LACHAUME put up a monumental exhibit of *Orchids*. M. E. DEBBIE also had a series of floral decorations of various kinds; and M. PILLON also contributed to the same section.

VEGETABLES.

Only those who know the Paris autumn show can form an idea of the way in which vegetables are staged there. Once again the famous house of VILMORIN, ANDRÉUX & Co. took the premier place. They set up a border 160 feet long by 7 feet wide, containing a grand display of every kind of vegetable in season. L'ETABLISSEMENT "A

LA PENSÉE" also staged a long border of excellent vegetables, enlivened with *Cactus Dahlias*. The same exhibitor had a large and varied collection of *Potatoes*. A large group of vegetables and saladings was shown by the ECOLE D'HORTICULTURE ST. NICHOLAS. Messrs. ANGEL ET FILS displayed a small collection of vegetables. Messrs. RIGAUT ET FILS showed *Potatoes* in variety, as also did the JARDINS OUVRIERS XVI. ARRONDISSEMENT. M. COMPOINT, in a glass case 35 feet in length, demonstrated the art of *Asparagus* culture, showing plants, beds in bearing, seedlings, &c.

The usual festivities accompanied the opening of the show. The society gave a lunch at Ledoyen's Restaurant in the Champs Elysées to members of the jury, officers of the society, and visitors.

LINNEAN SOCIETY.

NOVEMBER 2.—A general meeting of the Fellows of this society took place on the above date. The President read the following reply by Sir Joseph Hooker, in response to the letter of congratulation sent to him from the general meeting of June 15:—

The Camp, Sunningdale,
June 25, 1911.

My dear President,

The warm congratulations with which I have been greeted by my fellow-members of the Linnean Society on the approach of my 94th birthday have moved me more deeply than I can express. From no other association of scientific labourers could greetings be so welcome to me, because of the esteem and affection I feel for the Society as one of its oldest members and because of my descent, as grandson and son of two of its earliest.

Requesting you to make known to my fellow-members my hearty appreciation of their affectionate congratulations and my own best wishes for the continuation of its increasing prosperity,

Believe me, sincerely yours,

(Signed) JOS. D. HOOKER.

The President,

Mr. Alfred O. Walker read a paper on "The Distribution of *Elodea canadensis* in the British Isles in 1909." He stated that *Elodea canadensis*, Michaux, is said to have been first seen in Ireland in 1836, and in Berwickshire in 1845. By 1850 it had become so abundant in many parts of the British Isles as to be a serious nuisance by choking up canals, watercourses, and drains, and all attempts to clear it out failed. It was found, however, that after a few years it died out, or became comparatively scarce and feeble. Information on the subject is given in the paper from 24 counties in England and Wales, six in Scotland, and three in Ireland, showing on the whole that the plant has decreased of late.

Mr. ALFRED O. WALKER exhibited *Clarendon trichotomum*, Thunb., in fruit, a result of the past abnormal summer, explaining that, although the plant frequently flowered, this year is the first time it has fruited, the same occurrence being also observed at Kew.

NATIONAL VEGETABLE.

OWING to the poor attendance of visitors to the two shows held by the above society in London during 1910 and 1911 respectively, the committee have arranged to hold their exhibition next year in the Clarendon Hall, Watford, Hertfordshire, on Wednesday, October 2. By doing so they hope to bring the work of the society before a more rural population. Watford is noted as a large vegetable-growing centre, and considerable interest is taken in all phases of horticulture by the residents. It is situated on the main line London and North-Western Railway, and is easily reached from most parts of the country. The Clarendon Hall is situated in the centre of the town, and offers every facility for the holding of a large and interesting exhibition. The annual general meeting of the members of the society will be held at the Horticultural Hall, Vincent Square, Westminster, on Tuesday, the 21st inst., at 2.30 p.m. The hon. secretary is Mr. E. G. Quick, "Kelmescott," Harrow Way, Wealdstone, Harrow.

RAYLEIGH AND DISTRICT HORTICULTURAL.

NOVEMBER 3, 4.—On these dates the above-mentioned society held its annual autumn show of *Chrysanthemums*, fruits, flowers, and vegetables, the results—regarding the number of entries, quality of the exhibits, and attendance of visitors—being very satisfactory. The 85 classes provided in the schedule were well contested. Mr. S. TAYLOR, Alpha Nursery, Rayleigh, won the 1st prizes in the classes for a group of *Chrysanthemums* and three dishes of Pears, his exhibit including a fine dish of *Marguerite Marillat*. Mr. LONGSTONE had the best half-dozen dishes of Apples, Mr. S. TAYLOR being a close 2nd; both staging fine fruits of *Bramley's Seedling*, Warner's King, and other approved varieties.

HORTICULTURAL CLUB.

A MINIATURE ALPINE GARDEN.

NOVEMBER 7.—The monthly meeting of the members of the Horticultural Club took place on the above date, Mr. George Bunyard presiding. The house dinner was followed by a lecture given by Mr. Reginald A. Malby, descriptive of his miniature Alpine garden at Woodford, Essex. The lecturer explained that he had only the limited area of an ordinary suburban villa garden—a garden surrounded by houses and situated well within an eight miles radius of the Bank of England.

The soil is a wax-like clay, and the London smoke frequently hangs about the locality, yet in spite of these drawbacks Mr. Malby succeeds in growing several hundred varieties of choice Alpine plants and in getting many of the admittedly more difficult sorts to flower in a manner which called forth repeated exclamations of admiration when the slides were exhibited on the screen.

A large number of beautiful slides were shown from negatives made by Mr. Malby. In the course of his remarks, the lecturer pointed to the great value of Alpine plants for small gardens that are required to be attractive at every season of the year, for in the Alpine garden there is some plant or other in flower from January to December to cheer and delight the cultivator.

Most of the illustrations were in ordinary monochrome slides, but the lecturer showed a few slides in colour prepared by a process which he has been experimenting upon. These slides showed the harmonious colour scheme which characterises this "miniature Alpine garden" within the bounds of Greater London.

Following upon the lecture, some very interesting remarks on Alpine plants in their native homes were made by Mr. Reginald Farrer and Mr. H. Stuart Thompson.

It was announced by the Hon. Secretary that the next meeting will take place on December 5, when Mr. Arthur W. Sutton will deliver a lecture on "Four Hundred Miles on Horseback East and West of the Jordan, being an account of a camping tour made in 1896, illustrated by 100 painted views of the Lebanon, Gilead, Bashan, Moab, and Southern Palestine."

SCOTTISH HORTICULTURAL.

NOVEMBER 7.—The monthly meeting of the above association was held in the Goid Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. Massie, the President, was in the chair, and there was an attendance of 125 members.

A paper was read by Mr. Wm. Roadley, Comely Bank Nursery, Edinburgh, on "Propagation." He dealt with the subject from the point of view of the practical nurseryman, and gave an extremely interesting account of the various vegetative methods of propagation—cuttings, buds, grafts, &c. Propagation by seed, he said, was Nature's principal method, and generally it was the most advantageous method, but when exact counterparts of the parent plant had to be produced this was not always reliable, and the alternate systems referred to above had to be resorted to.

The exhibits included decorative *Chrysanthemums* Betty Spack, Cranford Yellow, and Miss Collier, and single yellow *Chrysanthemum* Mrs. T. Gilbey (a yellow form of *Edith Pagram*), and

Charles Kingsley, from Messrs. DOBBIE & Co., and various Chrysanthemums from Mr. W. WILLIAMSON, Edinburgh, and J. BRUCE, Davidson's Mains. A Certificate of Merit was awarded to the single yellow Chrysanthemum Mrs. T. Gilbey, shown by Messrs. DOBBIE & Co.

As the result of the suggestion made by Mr. Cuthbertson, at the October meeting, that the members should send to the secretary the names of what they considered the best twelve early-flowering Chrysanthemums, in a variety of colours, it was found that the favourites were—Goacher's Crimson, White Massé, Lillie Polly, Nana Black, Abercorn Beauty, Leslie, Elston Yellow, Hector, Carrie, Diana, and Horace Martin.

At the meeting on December 5, a lecture will be given by Mr. Thos. Anderson, M.A., B.Sc., Edinburgh, and East of Scotland College of Agriculture, on "Insects and Flower Pollination" (with lantern illustrations).

Twenty-four new members were elected.

WEST OF ENGLAND CHRYSANTHEMUM.

NOVEMBER 7.—The above society opened its twentieth show in the Guildhall, Plymouth, on this date. The exhibition was very successful and of high merit. The cut blooms, though fewer than in former years, were very fine, and there was a splendid show of fruit, and especially of Apples. In the class for 24 blooms of Japanese Chrysanthemums, the 1st prize was won by Rev. T. SHEEPHANKS with an excellent collection of flowers, among which some of the best were Becham Keeling (red and yellow), Madame G. Rivol (yellow), Master David (dark red), Shanklin (pale pink), and Frances Jolliffe (a pale yellow). Mr. SHEEPHANKS also won 1st prizes for 18 Japanese blooms, displayed in vases, and for 12 blooms, as well as in two classes for singles. Messrs. J. WEBBER & SON won the 1st prize for a miscellaneous group of stove and greenhouse plants with a tastefully arranged collection, including Orchids of many varieties, Lilium longiflorum, Carnations, Codæums (Crotons), Eglicus, Begonia Gloire de Lorraine, Cyclamen, Chrysanthemums, Palms and Ferns.

MESSRS. MEARS & SONS showed three baskets of ripe Raspberries, which this season have been fruiting more or less continuously since the spring. An Award of Merit was made to Col. the Hon. H. F. TREFUSIS for nine vases of Violets, in seven varieties, which were very fine. One of the most attractive features of the show was a table of salads, with which Mrs. BAINBRIDGE won the 1st prize. At the back were two tall pillars carrying a profusion of large, red and yellow Capsicums, while towards the front were pyramids of Mustard and Cress. Among other kinds were Corn Salad, English and Italian Chicory, Batavian and Moss-cured Endive, Tomatos, Radishes, Dandelion, Chicory, Celeric, Cress, Chilis, Coriander, Tarragon, Cucumber, Beetroot, Lettuce, Celery and Watercress. The collection was most tastefully set up. Mr. F. R. ROBB won the 1st prize in the class for a collection of 24 dishes of fruit, showing of Grapes, the varieties Canon Hall Muscat, Muscat of Alexandria, Appley Towers, and Gros Maroc, ten dishes of Apples, seven dishes of Pears, Ringleader Melon, Quinces, Tomatos, and Medlars. The 1st prize for 20 dishes of Apples, of distinct varieties, was won by the Earl of MORLEY. Mrs. BAINBRIDGE won the 1st prize for six table plants, while in the class for six Begonias of the Gloire de Lorraine varieties, the 1st prize was won by Sir R. POLE-CAREW. Mr. C. BEWES was awarded the 1st prize in the class for six Primulas, and Sir JOHN JACKSON the 1st prize for six Zonal-leaved Pelargoniums. The nurserymen's exhibits were especially attractive. Messrs. ROBERT VEITCH & SON, Exeter, showed new single Chrysanthemums, including Manor House Beauty (large red, with yellow centre), Ceddie Mason (maroon-red), Snowflake (white), W. Jarman (rose), Miss Lilian Bullivant (pale yellow), Florrie Stevens (orange and red), Jean Edwards (pale pink), Exonia (yellow), and Mrs. J. Lawrence (white). They also showed Physalis Franchetii, Acacia Baileyana, Correa canalis, C. magnifica, C. curiosa, Gerbera Jamesonii, Colletia cruciata (well flowered), Clematis Nellie Moser, Nerine Bowdenii, and other interesting plants. A Silver Medal was awarded to this exhibit. The KING'S

ACRE NURSERIES, Hereford, was awarded a Gold Medal for a collection of Apples in about 200 varieties. Amongst the most noticeable were King's Acre Pippin, Tyler's Kernel, Encore, Rival, Wealthy, Frogmore Prolific, Golden Noble, Golden Spire, Melon Apple, Royal Jubilee and Sanspareil. The DEVON ROSERY, Torquay, exhibited a splendid selection of Apples and Pears. A Silver Medal was awarded this firm. Messrs. WEBBER & SONS, Plymouth, showed a large stand of perpetual-flowering Carnations.

SOUTHAMPTON ROYAL HORTICULTURAL.

NOVEMBER 7, 8.—The autumn show of this society was held in the Victoria Hall, Southampton, and the exhibition was in every respect a success.

In the class for a group of Chrysanthemums arranged for effect, Mr. F. BEALING, Bassett Nurseries, Southampton, was easily 1st with well-grown plants of incurved, Japanese, and single-flowered varieties arranged in a series of mounds, each being topped with a suitable-sized plant of Kentia Belmoreana. The 2nd prize was won by Lady ELLEN SWAYTHLING, South Stoneham House (gr. Mr. T. Hall). The best exhibit of six specimen Chrysanthemum plants suitable for conservatory decoration were shown by Mr. S. JOYNER, Freemantle; 2nd, Mr. BEALING, whose exhibit of six single-flowered varieties was remarkable for the wealth of flower and the specimens presented. Growers of "bush" plants grown freely and without stiff training receive much encouragement at this exhibition. The premier award for plants of this type was won by J. C. D'ESTERRE, Esq., Glenfield Hill, Southampton (gr. Mr. C. Hosey), for plants nearly 4 feet in diameter and freely flowered.

CUT BLOOMS IN VASES.—There were four exhibitors in the class for 24 Japanese blooms in eight varieties. A. TATE, Esq., Downside, Leatherhead (gr. Mr. W. Mease) was distinctly ahead with fresh highly coloured examples of popular varieties, among which Duchess of Sutherland was remarkable for its broad flowers and rich colouring; Kara Dow, crimson and gold, is an improved J. H. Silsbury. Mrs. A. T. Miller is still the best white, and F. S. Vallis a good yellow. 2nd, Captain DALGETY, Lockerby Hall, Romey (gr. Mr. A. Baxter), with good blooms generally, yet showing one or two distinctly faulty specimens.

For three blooms of any two white-flowered varieties Major CHICHESTER, Embley Park, Romey (gr. Mr. W. Hall) won the 1st prize with W. F. Lever and Mrs. A. T. Miller, one bloom of the latter sort being so fine that it was adjudged the premier Japanese Chrysanthemum in the Show; 2nd, J. C. D'ESTERRE, Esq., with slightly smaller specimens.

Major CHICHESTER, with Rose Pickett and Bessie Godfrey, won the leading prize in the class for six blooms other than white; 2nd, Captain DALGETY, who won the 1st prize in the class for four varieties of the Japanese type suitable for decoration.

For sections other than Japanese and single varieties Mr. F. BEALING led with four vases of high-class blossoms of the incurved varieties Romance and Embleme Poitevine in conjunction with the Anemone-flowered varieties Delaware and Mrs. Henegay; they were all magnificent flowers arranged effectively. In the class for six single-flowered varieties, an unlimited number of blooms being allowed, a pretty effect was produced. The premier exhibit was shown by M. HODGSON, Esq., Kingsworthy, Winchester (gr. Mr. A. J. Marsh); the collection included fully-developed blooms of Mrs. R. C. Pulling, Keston Gem, Altrincham Yellow, Mensa, Sylvia Slade, and Mrs. E. Roberts; 2nd, Mr. BEALING, with a handsome exhibit.

In a class for six single-flowered varieties, not disbudded, Mr. C. DYMOTT, Freemantle, had the best exhibit of five.

Blooms were shown well on boards. The best collection of 24 Japanese blooms in not fewer than 16 varieties amongst five competitors was shown by Captain DALGETY, who had Mrs. G. Hemming (purple), Hon. Mrs. Lopes, Lady Talbot, and the pure white Eclipse, remarkably good. M. HODGSON, Esq., was placed 2nd, having good blooms, but not quite so even generally. Major CHICHESTER was the most successful ex-

hibitor in the class for 12 Japanese blooms, Mr. F. CHANDLER being placed 2nd.

Blooms of incurved varieties were remarkable for their high quality, large size, and good finish. M. HODGSON, Esq., excelled in the class for 18 blooms, showing such sterling varieties as Embleme Poitevine, Romance, the pure white H. W. Thorp, Mrs. G. Denyer, silvery pink, and the cream-tinted Clara Wells. A. TATE, Esq., was awarded the 2nd prize.

In the fruit classes, W. H. MYERS, Esq., Swanmore Park, Bishop's Waltham (gr. Mr. G. Ellwood), won the 1st prize for two bunches of Black Grapes with fine bunches of Alwrick Seedling. Major CHICHESTER, who staged Appley Towers, was placed 2nd. This gentleman had the best two bunches of Black Alicante in the class for that variety, also the premier exhibit in the class for two bunches of any white Grape with Muscat of Alexandria.

Apples were a strong feature. For four dishes of dessert varieties Mrs. W. KNOX, Hord Hatch, Alton (gr. Mr. West), was easily 1st, all the varieties being remarkably well coloured.

Vegetables were handsomely displayed by W. H. MYERS, Esq., who won the leading awards offered by Messrs. Toogood & Sons, Southampton, and Messrs. Sutton & Sons, Reading.

NON-COMPETITIVE EXHIBITS.

MESSRS. TOOGOOD & SONS were awarded a Gold Medal for an exhibit of vegetables.

MESSRS. B. LADHAMS & SONS, Shirley, Southampton, had a fine display of rock and hardy border plants. (Silver Medal.)

MESSRS. E. HILLIER & SON, Winchester, showed a collection of Apples. (Silver Medal.)

MESSRS. W. H. ROGERS & SON, Southampton, received a similar award for an exhibit of Apples.

One of the finest features of the show was a collection of three dozen dishes of Apples, all richly coloured and tastefully arranged with Grevillea robusta sprays from the gardens of W. H. MYERS, Esq. (Silver-Gilt Medal.)

CARDIFF CHRYSANTHEMUM.

NOVEMBER 8.—As usual, this exhibition was held in the Park Hall, Cardiff. The show was, on the whole, satisfactory, although the entries in the cut bloom classes were not quite so numerous as in past years. One notable exhibitor, who has done much to make the Cardiff shows a success in former years by his magnificent exhibits of cut blooms, was unable to be present. The groups of Chrysanthemums were well arranged, and of good quality, and the single-flowered varieties were noteworthy. Trade exhibits added to the general interest of the show.

The principal group class was for an exhibit occupying a space of 60 square feet, and arranged in the centre of the Hall. Mr. W. TRESEDER, Cardiff, won the premier award with finely-developed blooms, pleasingly associated with foliage plants, including Ferns.

The "Thomas Andrews" Challenge Cup was offered for a group of Chrysanthemums only. The EXECUTORS of the late J. HOWELL, Esq., Grove House, Cardiff (gr. Mr. A. Brown), were well 1st, the flowers being of fine quality, and the arrangement almost faultless; 2nd, Mr. W. HATHERDALE, 53, Shakespeare Street, Cardiff, his display being very little inferior to the premier exhibit.

Mr. John Basham, Fair Oak Nurseries, Bassaleg, Newport, offered a silver cup for a group of single-flowered varieties occupying a space of 40 square feet. Mr. S. J. T. GRINTER, Cardiff, was the only exhibitor, but he put up a magnificent display of finely-grown and disbudded plants, with blooms of high quality; such varieties as Altrincham Yellow, Eureka, and Bronze Pagram being excellent.

The most meritorious group of miscellaneous plants arranged for effect was exhibited by Lady HILL, Rookwood, Llandaff (gr. Mr. Mackintyre).

CUT BLOOMS.—The principal class for cut blooms was for eight varieties of the Japanese type, three blooms of each sort, arranged in vases. F. S. WILLIAMS, Esq., Bryn Glas, Newport (gr. Mr. J. Duff), was easily 1st, with large flowers of Mrs. A. T. Miller (premier bloom in the show), Master David, Mrs. W. Knox, President Viger, The Hon. Mrs. Lopes, Bessie Godfrey, and Reginald Vallis. The Marquis of Bute,

Castle Castle (gr. Mr. Farmer), followed closely. The varieties Messrs. P. Radcliff, W. A. Etherton, and Master James were conspicuously good in this exhibit.

W. GODFREY CLARK, Esq., Talygarn (gr. Mr. J. E. Davies), won in the class for 12 Japanese, distinct, in a keen competition, the Marquis of Bute being placed 2nd.

Incurved varieties were neither numerous nor good. Sir C. E. G. PHILLIPS, Picton Castle, Haverfordwest (gr. Mr. J. Evans), was awarded the 1st prize for large, rather coarse bloms. Fanny Lemon (pale yellow), Romance, Emblème Poitevine, and the pink Duchess of Fife being the best examples.

Singles were shown well. For six varieties, five sprays of each, Dr. WALLACE, Newport Road, Cardiff (gr. Mr. T. Bindon), was 1st, with typical blossoms of Metta (deep magenta with white zone), Mrs. E. Roberts (pink), Altrincham Yellow (pale yellow), George Williams (bronze yellow), and Eureka (pure white); 2nd, Mr. G. H. SCREEN, Assay Street, Penarth.

In the class for the best-arranged vase of single Chrysanthemums, there was a keen competition between the two former competitors. In this case Mr. SCREEN beat Dr. WALLACE, both staging handsome blooms, although none too well arranged.

NON-COMPETITIVE EXHIBITS.

Trade exhibits were of an interesting character. Messrs. STUART LOW & Co., Bush Hill Park, Enfield, showed Orchids and Carnations. Amongst the Orchids we noted *Cycnoches rhinophilum* (Swan Orchid), *Brasso-Cattleya Norve*, *Cypripedium insigne* Sandere, and C. i. "Harefield Hall" variety. (Gold Medal.)

A Gold Medal was also awarded to MESSRS. MANSELL & HATCHER, Rawdon, Leeds, for Orchids in variety; and to MESSRS. J. BASHAM & SONS, Fair Oak Nurseries, Bassaleg, for a display of Apples.

ROCHFORD AND DISTRICT HORTICULTURAL.

NOVEMBER 7, 8.—This society held its first annual exhibition of Chrysanthemums, fruits, flowers, and vegetables in the Corn Exchange on these dates, and the show proved to be a complete success for a first venture. JAMES TABOR, Esq., The Lawn, Rochford (gr. Mr. J. Burles), was the most successful exhibitor in the open classes; he won the 1st prizes for a group of Chrysanthemums in pots arranged for effect, and for a group of miscellaneous plants similarly arranged, as well as in each of the five leading classes for cut blooms, staging grand blooms of up-to-date varieties, including Mrs. A. T. MILLER, Duchess of Sutherland, Reginald Vallie, and Bessie Godfrey. Dr. LEWIS, Roche House, Rochford (gr. Mr. R. Bright), and Mr. W. THURLEY, Southend-on-Sea, also showed well in these classes. Apples and Pears were shown in good condition by Mr. HERBERT, The Nurseries, Eastwood, near Rochford, and by Mr. R. MAY, Jun., Stroud Green, Rochford. Mr. MEZEN and Mr. J. BURLES were placed 1st and 2nd in the order in which their names appear for collections of vegetables. Mr. H. E. CAMPKIN and Mr. W. THURLEY were the most successful exhibitors in the amateur (cut bloom) classes, staging very creditable specimens. The Cup offered by Alderman J. C. Ingram (Mayor of Southend-on-Sea) for the best trade exhibit was won by Mr. PILGRIM, London Road, Southend-on-Sea, with a fine exhibit.

WESTON-SUPER-MARE CHRYSANTHEMUM.

NOVEMBER 8, 9.—This society held its 25th annual exhibition on these dates. It was decided this year to extend the show over two days, and this resulted in a financial success, the receipts enabling the deficit of last year to be eliminated. The group and cut bloom and decorative classes were well filled, but there was a falling off in the classes for vegetables. For a group of Chrysanthemums, arranged for effect, Mrs. BRAMBLE, Seafield, Weston-super-Mare (gr. Mr. Daffurn), won the 1st prize with a group of choice blooms, well arranged; 2nd, Mr. W. BROOKS, Whitecross Nursery. Mr. C. J. ELLIS, Weston Nurseries, won the 1st prize easily in the class for a group of stove and greenhouse

plants, arranged for effect, with a bright and tastefully-arranged group; 2nd, H. CORNELIUS, Esq. (gr. Mr. C. Cook); 3rd, Mr. W. BROOKS, Whitecross Nursery. There were four exhibits in the class for a group of single Chrysanthemums arranged with foliage plants: the 1st prize was awarded to Mr. CORNELIUS, the 2nd to Mr. C. J. ELLIS, Weston Nurseries, and the 3rd to Mrs. R. J. BRAMBLE (gr. Mr. Daffurn). Mr. W. BROOKS was placed 1st for table Ferns, Orchids and Zonal-leaved Pelargoniums in the cut-bloom classes. THE FROME FRUIT AND FLOWER CO. was awarded the 1st prize for 24 blooms of Japanese Chrysanthemums; 2nd, Col. COLREX, whilst for 12 distinct varieties, Miss NEAL, Wheatleigh, Taunton (gr. Mr. W. Hayward), won the 1st prize; W. A. TODD, Esq., Portishead (gr. Mr. G. Sutton), being placed 2nd. Miss NEAL was also first for six Japanese blooms, distinct, but Mr. E. E. BAKER, Glebe House, Weston-super-Mare, followed closely. THE FROME FRUIT AND FLOWER CO. won 1st prizes for (a) six vases of three Japanese blooms; (b) three vases of white varieties; and (c) three vases of yellow varieties.

In the amateur classes for 12 Japanese blooms, Mr. J. ANDREWS, Weston-super-Mare, was awarded the 1st prize, having some remarkably fine blooms; he was also successful in the class for singles, and gained an Award of Merit for a choice bloom of Mrs. A. T. MILLER.

In the decorative classes, the chief prize-winners were Mr. W. BROOKS and Mr. C. J. ELLIS. Exhibits of fruit and trade groups helped to make a very attractive show. Great interest was centred in a large group of Chrysanthemums composed entirely of the pink, single-flowered variety Mrs. W. Buckingham, shown by Mr. C. J. ELLIS, Weston Nursery.

LIVERPOOL HORTICULTURAL.

NOVEMBER 8, 9.—The 32nd autumn exhibition of the Liverpool Horticultural Association was held in the spacious and well-lighted Corn Exchange. The entries were satisfactory, and the quality of the exhibits equal to the average. Cut blooms of Chrysanthemums, as usual, proved the most important feature of the show, and it was generally admitted that they were the finest ever staged at Liverpool.

The leading class was for 18 Japanese and 18 incurved blooms, staged on boards, and the premier award was gained by Sir GILBERT GREENALL, Bart., Warrington (gr. Mr. C. Goves), who staged a very fine exhibit, his best blooms being (Japanese) Eclipse, Frances Jolliffe, Hon. Mrs. Lopes, and Mrs. A. T. MILLER, and (Incurved) Buttercup, Emblème Poitevine, Mrs. G. Denyer, W. Biddle, and Pantia Ralli; 2nd, Sir WILLIAM BASS, Bart. (gr. Mr. R. Nisbet), who won the National Chrysanthemum Society's Certificate offered for the best blooms in the show with Mrs. W. B. MARSHAM and Godfrey's Eclipse. The other prize-winners were Sir W. H. TATE, Bart. (gr. Mr. G. Haigh), and R. R. HEAP, Esq. (gr. Mr. H. Osborne). For 18 incurved blooms, T. HENSHAW, Esq. (gr. Mr. J. George), was placed 1st, whilst for 12 blooms, Mrs. CLARK (gr. Mr. J. Clarke) won the 1st prize. In the classes for 18 and 12 incurved blooms, the principal prizes were won by Messrs. C. GOVES and H. BELK (gr. Mr. J. Cople). Mr. L. THOMSON was placed 1st for (1) six vases and (2) three vases of single-flowered Chrysanthemums. The best six vases of Japanese Chrysanthemums were shown by Sir W. B. FORWOOD, Bart. (gr. Mr. P. Jakeman).

CHRYSANTHEMUMS IN POTS.—In the class for three large-flowered, trained specimens and for one large-flowered trained specimen A. EARLE, Esq. (gr. Mr. T. Hitchman), won the 1st prize in each case. The best group of three trained plants of singles and the best trained plant of a single variety were shown by T. W. WRIGHT, Esq. (gr. M. F. Atkin). This exhibitor also showed the finest group composed of single varieties. W. J. LOCKETT, Esq. (gr. Mr. E. Finch), had the best six plants trained to stakes.

PLANTS.—W. TOD, Esq. (gr. Mr. G. Eaton), showed the finest group of three Ferns and one Fern, having splendid specimens of *Davallia filijensis plumosum* and *D. Mooreana*. Mr. F. ATKINS led for two Palms. Mr. P. JAKEMAN and Mr. T. ELSWORTHY showed the choicest

Orchids, and Mr. J. FINDLAY the best Begonias in the class for four plants.

FRUIT.—The 1st prize for six dishes of fruit was won by J. AMPHLETT (gr. Mr. R. Jones), his collection including good Grapes. Mr. T. ELSWORTHY led in the class for four bunches of Grapes with good bunches. J. W. RAYNES, Esq. (gr. M. J. Barker) showed the best bunches of Black Alicante, whilst the best bunches of any other Black Grape were shown by Mrs. KENDALL with Barbarossa. Mrs. S. COOK (gr. Mr. T. Barclay) excelled in the class for Muscat of Alexandria, his bunches having richly-coloured berries. Mr. T. ELSWORTHY won the 1st prize in the class for any other white Grape with Golden Queen. Apples and Pears were well represented, Messrs. F. BIBBY, Mrs. DUNCAN, Mr. W. MACKERRALL, and Mr. R. R. HEAP being prominent exhibitors.

NON-COMPETITIVE EXHIBITS.

Gold Medals were awarded to Messrs. MANSELL & HATCHER for a fine display of Orchids. Mr. NORMAN DAVIS for Chrysanthemums, and to Mr. J. LEE for a collection of Apples. Silver Medals were awarded to Messrs. FISHLICK BROS., Liverpool, for wreaths, crosses, and other floral devices; R. P. KER & SONS, Liverpool, for Cyclamen, Palms, Begonias, and other indoor plants; Messrs. W. WELLS & Co., Mertham, for Chrysanthemums; and THE LIVERPOOL ORCHID CO. for a group of Orchids. Messrs. T. DAVIS & Co., W. ROWLANDS, H. MIDDLEHURST, T. DAVIES & Co., and Messrs. DICKSONS, Chester, also exhibited groups in this section.

HASLEMERE CHRYSANTHEMUM.

NOVEMBER 9.—The eleventh annual show of this society was held on this date. The Challenge Cup offered by the society for a group of Decorative Chrysanthemums was for the second time, won by Mrs. HULSE, Nidcombe (gr. Mr. W. Tranmar); Sir R. GARTON, Lythe Hill (gr. Mr. J. Thorne), being a close 2nd. Mr. D. F. DUDMAN, Godalming, led in the class for 24 Japanese blooms; Messrs. THORNE and TRANMAR being placed 2nd and 3rd respectively, but Mr. DUDMAN was beaten by Mr. TRANMAR in the class for 18 incurved blooms. The best exhibit of 18 Japanese blooms in vases and 12 blooms on boards was shown by Lady PHILIPSON STOW, Blackdown (gr. Mr. W. Brooks). This exhibitor also won three 1st prizes in the fruit classes, and was awarded the special prize for the best Japanese bloom in the show, a very fine specimen of the white Mrs. A. T. MILLER. Buttercup, as shown by Mr. TRANMAR, was the best incurved variety. So close was the competition in the class for nine varieties of vegetables that an additional prize was awarded. Sir R. GARTON was deservedly awarded the 1st prize. A feature of the show was a fine exhibit put up by the OAKLANDS NURSERIES, Haslemere, consisting of Chrysanthemums, floral decorations, and fruit.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

NOVEMBER 13.—The monthly meeting of this society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on the above date. Mr. Thomas Winter presided. The death certificate of the late Mr. F. Morris was produced, and the sum of £29 5s. 7d. standing to his credit was granted to his nominee, Mr. H. Heims desired to be put on the benevolent fund, and it was agreed to grant him 5s. per week. Sick pay distributed since the last meeting has amounted to £54 5s. Mr. R. Weatherby was granted 19s. 6d. from the benevolent fund to pay arrears of contributions. The Government Insurance Bill was discussed at some length, and a special committee meeting will shortly be held for the purpose of deciding the best course to adopt in the matter.

BRITISH GARDENERS' ASSOCIATION. (LONDON BRANCH.)

The fourth annual social evening in connection with the above branch will be held at Carr's Restaurant, Strand, on Saturday, November 18. Mr. E. F. Hawes will preside. All interested in horticulture are invited to be present.

PERSHORE HORTICULTURAL.

NOVEMBER 9.—The 17th annual Chrysanthemum and fruit show of the Pershore and District Horticultural Society was held at Pershore on this date. The display was a record one, and the committee had shown praiseworthy enterprise in arranging for the first time commercial classes for fruit. These were a notable feature, and were open to all commercial growers residing within 25 miles of Pershore. Some excellent fruit was to be seen in these classes, and no fewer than 80 growers from Evesham, Malvern, Blockley and Winchcombe and the surrounding districts competed. The total entries for the show were 366, which was an advance of 120 upon the previous year's exhibits.

The chief prize-winner for Chrysanthemums in the commercial classes was Mr. J. T. COATES. In other classes, Miss EVA DAVIS, Mrs. W. G. V. PITCHER, Miss A. DAVIS, Miss E. A. DAVIS, Mrs. B. HALL, Mr. A. FERRIS, Mrs. C. E. DUFFY, Mrs. RUDGE, Mr. G. DUDLEY SMITH, Lady NORTHWICK, Mr. T. G. HYDE, Miss E. HICKS, Mr. J. DAWSON, Mr. J. TAYLOR, and Mr. H. WORKMAN.

The principal prize-winners in the open classes for fruit were the TODDINGTON ORCHARD CO., Col. HUDSON, Lady NORTHWICK, Mr. G. JONES, Mr. G. DUDLEY SMITH and Mr. J. B. DAWSON. For amateurs, Miss A. M. DUFFY, Mr. F. DAVIS, Mr. J. TAYLOR, Miss HOPKINS and Mr. P. HANSON.

Pershore market gardeners, Mr. J. B. DAWSON, Mr. H. MUMFORD, Messrs. T. HALL & SON, and Mr. G. HARRISON.

GLOUCESTERSHIRE ROOT, FRUIT, AND CHRYSANTHEMUM.

NOVEMBER 9.—The 48th annual exhibition in connection with the Gloucestershire Root, Fruit and Chrysanthemum Society was held at the Shire Hall, Gloucester, on the above date, and, like its predecessors, proved an unqualified success. The total number of entries was 847, being 100 more than last year, while the all-round quality of the exhibit was the subject of general comment.

The great feature of the show were the exhibits of fruit, which numbered 250 entries. Some of the classes for Apples were very keenly contested. In the class for Apple Cox's Orange Pippin, there were no fewer than 21 entries.

An interesting exhibit was sent by Mr. M. W. COLCHESTER-WEMYSS, consisting of some specimens of Apples that he had lately brought back with him from Canada. The exhibit was an object lesson on the Canadian system of fruit packing. Mr. M. P. PRICE, of Tibberton Court, also exhibited a collection of Apples, not for competition, as illustrating the advantage of orchard spraying with lime and salt spray, and Mr. HAROLD PHELPS, one of Gloucestershire's chief fruit growers, who believes in the value of lime spraying, exhibited some magnificent fruits of Blenheim Pippin Apples, which won 1st prize in string competition, picked from standard trees in his orchards.

The Chrysanthemums, although not very numerous, made an exceedingly pretty show, the cut blooms shown by Sir HUBERT PARRY, of Highnam Court, Gloucester, were remarkable for their dimensions and exquisite colours. In his exhibit of 18 Japanese blooms, the following varieties were conspicuous: W. H. THORNTON, J. Bunce, Master David, Mrs. Marsham, Beecham Keeling, Mrs. A. T. Miller, Maud Jefferies and James Lock. The other chief prize-winners for Chrysanthemums were Mr. HUGH ANDREWS, Toddington Manor; Mr. W. GORDON CANNING, Hartpury House; Mrs. H. T. T. HIGGINS Tuffrey; Sir WILLIAM WEDDERBURN, and Mrs. S. H. BRIERLEY, Southwick Park, Tewkesbury.

In the fruit classes the chief prizes for Apples were won by Mr. W. GORDON CANNING; Mr. A. J. COOK MORTON; Messrs. POWER & WHIFFEN, Aston Court, Ross; Mr. E. W. CADDDICK, Caradoc, Ross; Mr. W. S. R. COX, Ashe Leigh, Ross; Sir WM. MARLING, Sidbury Park, Chepstow; Mr. HAROLD J. PHELPS, Tibberton; Col. HENRY, Haffield, Ledbury; Sir WM. WEDDERBURN, Meridith, Gloucester; Mr. E. C. FORD, Newent; Mr. J. BOTT, Breinton, and Mr. REED, Newham-on-Severn.

In the Pear classes the chief exhibitors were Mr. W. GORDON CANNING; Mr. E. J. CUMMINS, Newent; Sir HUBERT PARRY, Highnam; Mr. T. PONTING, Taynton, and Col. HENRY.

The prizes for Grapes were divided between Sir HUBERT PARRY, Col. HENRY, and Mr. G. N. WALKER, Gloucester.

MALVERN HORTICULTURAL.

NOVEMBER 9.—A show of Chrysanthemums and other flowers, also fruit and vegetables was held by this society at the Assembly Rooms, Malvern, on the above date. The exhibition was of a high order of merit throughout, and better than last year's show, although there was a slight falling off in the number of entries. Chrysanthemums were specially good, and the fruit was remarkable for its good quality and rich colouring. There was, in addition to the new classes added last year (which were very successful), a class for vases of decorative Chrysanthemums. Sixty vases were entered, and the leading winners, Mr. W. T. ACOCK and Mr. O. N. HOLT-NEEDHAM, exhibited choice specimens of the Japanese type. Another new class was for 12 pots of Cyclamen, which made an interesting addition to the show. Mr. W. T. ACOCK received the premier prize in this class.

Certificates of merit were awarded to a number of honorary exhibitors. Mr. W. T. ACOCK, Priory Road, made an excellent show of Chrysanthemums, Lilies and Cyclamen; Mr. J. H. MARSDEN, of Malvern Link, was represented by a choice collection of hardy Chrysanthemums, Carnations and decorative plants. Choice Roses were shown by Mr. WILLIAM COYLE, successor to Mr. G. H. TOWNSEND; and an admirable display of "Gloire de Lorraine" Begonias was made by Mr. G. MASON. Mr. F. A. INVERSCHELL exhibited a handsome group of Chrysanthemums, as did also Messrs. R. M. FISHER & SON, of St. Andrew's Nurseries, who also included Roses and a variety of flowering plants, while Messrs. J. H. WHITE & CO., Worcester, were among the honorary exhibitors with plants and Apples.

The principal prize-winners for Chrysanthemums were, in the open classes, Mr. W. T. ACOCK (Silver Cup), Messrs. R. M. FRASER & SON, Mr. O. N. HOLT-NEEDHAM, Mr. W. B. HUNTINGTON (Blackmore Park), Miss E. COX, and Mr. S. H. BICKHAM.

In the classes for local exhibitors the chief prizes in the Chrysanthemum classes were won by Miss E. COX, Mr. W. B. HOLT-NEEDHAM, Mr. J. NELSON, Mr. J. HANDY, Mr. W. B. HUNTINGTON, Mr. A. FIRKINS, and Mrs. BOWLES.

The chief prize-winners in the fruit classes were Mr. S. H. BICKHAM, Mr. G. E. LANE, Mrs. GRICE HUTCHINSON (open classes), Mr. W. B. HUTCHINSON, Mr. O. N. HOLT-NEEDHAM, Mr. C. F. ROTHAM, Mr. G. LANE, Mr. J. HANDY, and Mr. J. KITCHING.

DEVON AND EXETER HORTICULTURAL.

NOVEMBER 9, 10.—The 211th exhibition of the above society was held in the Victoria Hall, Exeter, on these dates, the principal exhibits being fruit, Chrysanthemums, and vegetables. Although the exhibitors were fewer than usual, the number of entries were about the average for this show. Apples showed a high standard of quality throughout, but Pears were not up to the standard usually reached at this exhibition. The common experience of the exhibitors, as expressed at the show, was that Pears this season are keeping very badly. Vegetables were exceptionally good for the season.

CHRYSANTHEMUMS.—CUT BLOOMS.

The president, E. H. Bayldon, Esq., offered the 1st prize in the class for 12 vases of Japanese varieties, distinct, three blooms of each sort, and it was won by Mrs. GIDLEY, Hoopern House (gr. Mr. W. R. Baker); Rev. T. SHEEPSHANKS, Stoke-lake (gr. Mr. A. Dunkley), being placed 2nd. In Mrs. GIDLEY's exhibit were Beecham Keeling, Lady Talbot, Rose Pickett, Mrs. A. T. Miller, Henry Poulton, and President Viger. There was little to choose between the 1st and 2nd prize collections.

In the class for 24 Japanese blooms, in not fewer than 18 varieties, the 1st prize was awarded to a fresh exhibitor, Mr. T. C. LOOSEMORE, Weymouth, and again Rev. T. SHEEPSHANKS was 2nd. Mr. LOOSEMORE's best blooms were Mrs. A. T. Miller (which was awarded the N.C.S. Medal offered for the best bloom in the show), Willie Rawlings, Pickett's Crimson, Bessie Godfrey, and Sir Frank Crisp.

Only one exhibit was staged in the class for a collection of cut blooms, representing not fewer than six types of the flower of the 10 enumerated in N.C.S. catalogue namely, from Mr. C. M. COLLINGWOOD, Exeter, but it was in all respects an excellent one. All the 10 sections of the flower were represented, the blooms being fresh and bright in colour, and the collection one of great merit. The 1st prize was awarded. Mr. COLLINGWOOD also won the N.C.S. large Silver Medal and the N.C.S. small Silver Medal for the best bloom exhibited by an amateur, this being a very fine specimen of "Romance."

Rev. SHEEPSHANKS was placed 1st for the best exhibit of 12 Japanese blooms; A. ST. MAUR, Esq., Stover (gr. Mr. G. F. Richardson), being 2nd. Rev. SHEEPSHANKS had good blooms of Master David, Mrs. Marsham, Lady Talbot, Frances Jolliffe, F. S. Vallis, and P. Radaelli.

CHRYSANTHEMUMS IN POTS.

The best decorated group, both pot and cut blooms together, was shown by Mrs. W. J. PRING, Exeter (gr. Mr. F. Webber). This prize also carried with it the Silver Challenge Cup, presented by H. E. DUKE, Esq., K.C., the member for Exeter. The Cup has to be won three times by the same competitor, and this is the second time Mrs. PRING has won it.

FRUIT.

GRAPES were fairly well shown; Sir W. FERGUSON DAVIE, Bart., Creedy Park (gr. Mr. W. Seward), was 1st for Black Alicante, and Captain MORRISON-BELL, M.P., Pitt House (gr. Mr. W. North), 1st for White Muscats.

In the class for any other Grape, Captain MORRISON-BELL was 1st with well-finished bunches of Appley Towers, and Sir W. FERGUSON DAVIE 2nd, with Gros Maroc.

The best collection of six dishes of fruits was shown by Captain MORRISON-BELL, who exhibited Muscat of Alexandria and Appley Towers Grapes, Durondeau Pear, Cox's Orange Pippin Apple, and Green Gem Melon. This prize also carried with it the Silver Challenge Cup, presented by Councillor Linscott, J.P., and as it had now been won for the third time by Captain MORRISON-BELL, it becomes his absolute property.

APPLES.—In nearly all the collections of Apples the same kinds were staged, the more popular varieties being shown. In the class for 24 varieties, HAROLD ST. MAUR, Esq. (gr. Mr. G. F. Richardson), was placed 1st, and Sir W. FERGUSON DAVIE, Bart., 2nd. In the class for six dessert sorts, Mr. ST. MAUR was also 1st, and for six varieties of culinary varieties, Sir W. FERGUSON DAVIE was successful.

PEARS.—The 1st prize in the class for a collection of nine varieties was won by F. R. RODD, Esq., Launceston (gr. Mr. F. A. Bellings).

VEGETABLES.—Mrs. GIDLEY won the 1st prize in the class for a collection of eight kinds with well-grown produce, Cranston's Excelsior or Ailsa Crag Onion, Veitch's Intermediate Carrot, Renton's Monarch Leek, Exhibition Brussels Sprouts, Improved Parsnip, and Veitch's Glory Tomato being all good. Messrs. Robert Veitch & Son's prize was won by Mrs. W. J. PRING. Mrs. GIDLEY being a very close 2nd. Other special prizes were won by Mr. F. R. RODD, Dr. SAMWAYS, and Mr. LOVELL.

NON-COMPETITIVE GROUPS.

Trade exhibits were a feature of the exhibition. Messrs ROBERT VEITCH & SON showed single Chrysanthemums, Carnations, Nerines, ornamental-foliaged shrubs, conservatory plants, and fruit; Mr. GODFREY, Exmouth, made a fine display with Pelargonium blooms, Carnations, and other plants; while Messrs. JARMAN & CO., of Chard, had a fine stand of table fruit.

PUTNEY, WANDSWORTH AND DISTRICT CHRYSANTHEMUM.

NOVEMBER 9, 10.—The 54th annual exhibition of this society was held in the Cromwell Hall, Putney, on these dates. The show was, in most respects, equal to those of the previous years, but there were only two exhibits in the class for a group of Chrysanthemums, being fewer than usual. The 1st prize in this class—a silver cup given by the trustees of Putney—was won by an amateur, Mr. R. H. VINCENT, Wimbledon. The 2nd prize was awarded to J. H. PAVITT, Esq., Tudor Lodge, Wimbledon Common (gr. Mr. A. Wood).

The 1st prize for a miscellaneous group was won by Mrs. DICKIE, Putney Hill (gr. Mr. T. Pett), and the 2nd prize by Dr. LACROIX, Bryndor, Roehampton (gr. Mr. F. Cresswell).

In the classes for cut blooms some remarkably fine flowers were shown. The principal class was for eight vases of Japanese Chrysanthemums, three blooms of one variety in each vase. The 1st prize, a silver cup given by Alderman A. D. DAWNEY, Mayor of Wandsworth, was won by Mme. THUNDER, The Convent, Roehampton (gr. Mr. A. Smith), with splendid blooms of the following varieties: Rose Pockett, Bessie Godfrey, Reginald Vallis, Frank Payne, F. S. Vallis, Master David, J. H. Silsbury, and Geo. Hemming; 2nd, G. H. ANDERSON, Esq., The Wilderness, Wimbledon Park (gr. Mr. H. Barrett). A specimen of Bessie Godfrey in this exhibit was adjudged the premier bloom. The 3rd prize was awarded to A. J. PICKETT, Esq., Keswick Lodge, East Putney (gr. Mr. W. Linnier).

Mme. THUNDER also won the following prizes for cut blooms: (a) 1st for 24 Japanese blooms; (b) 2nd for 12 Japanese blooms; (c) 1st for six blooms of a white variety; (d) 1st for six yellow blooms; and (e) 1st for six blooms of any other color, staging in this last class the variety Rose Pockett.

Incurred blooms were shown well by Mrs. GOOD, Wynnstay, Putney Hill (gr. Mr. J. A. Fry); a fine flower of Godfrey's Eclipse was awarded the prize for the premier bloom of this type.

Single Chrysanthemums were shown well by the Dowager Countess of KINTORE, Oaklea, Wimbledon Park (gr. Mr. D. Anderson), and Dr. HOFFMAN, Coombe Lodge, West Hill, Putney (gr. Mr. T. Dolley).

Winter-flowering Begonias were a great feature, the 1st prize being won by THOS. AIKMAN, Esq., Pendreath, Clifton Road, Wimbledon (gr. Mr. W. Pink).

In the vegetable section, the 1st prize in Messrs. Jas. Veitch & Sons' class was won by Dr. HOFFMAN. A 1st prize for vegetables was also won by Geo. FORBES, Esq., Blenheim, Raynes Park (gr. Mr. Chas. Pullen).

The fruit classes were not quite so well filled as usual. The best black Grapes were shown by Sir W. J. LANCASTER, South Lynn, Putney Hill (gr. Mr. F. H. Goddard), and the best white Grapes by Dr. LACROIX. Both kitchen and dessert Apples were shown well by Mme. THUNDER, and Pears by OWEN SEAMAN, Esq., The Tower House, West Hill, Putney (gr. Mr. C. Alexander).

NON-COMPETITIVE EXHIBITS.—A fine group of foliage and flowering plants was arranged by Messrs. JAS. VEITCH & SONS, Chelsea. Mr. L. R. RUSSELL, The Richmond Nurseries, put up a display of hardy, ornamental-foiled and berried plants. Floral designs were staged by Messrs. J. WALDEN & SONS, Messrs. MAHOOD & SON, and Mr. W. R. MANN, all local florists.

BRADFORD AND DISTRICT CHRYSANTHEMUM.

NOVEMBER 10, 11.—The 25th annual exhibition of the above society was held in St. George's Hall, Bradford, on these dates, and proved a great success. The society is in a flourishing condition, and has at all times the support of the Lord Mayor of the borough. At the opening ceremony, performed by the present Lord Mayor, there were six ex-Lord Mayors present.

The principal class, that for 24 Japanese blooms, in not fewer than 18 varieties, was contested by eight exhibitors, and provided a magnificent display of blooms. The 1st prize of £10 was won by ARTHUR JAMES, Esq., Coton

House, Rugby (gr. Mr. A. Chandler), who showed splendid examples. This gentleman has been successful on former occasions at Bradford, but never before, probably, has he shown such highly-developed flowers. The varieties included Lady Talbot, R. H. B. Marsham, Frances Jolliffe, Hon. Mrs. Lopes, Master James, F. S. Vallis, Evangeline, Reginald Vallis, Bessie Godfrey, J. Lock, O. H. Broomhead, A. Lemon, Marie, President, Vigor, and Lady Talbot. The 2nd prize of £7 was won by A. TATE, Esq., Downside, Leatherhead (gr. Mr. W. Mease), whose best flowers were Mrs. G. Drabble (premier bloom), R. Vallis, Kara Daw, A. Lemon, Evangeline, and G. Mileham; 3rd, Miss BENNETT, Grimsby (gr. Mr. G. Burrows), Mrs. H. WOOLMAN, of Shirley, Birmingham, and Mr. CHAS. JONES, of Abergele, North Wales, were placed 4th and 5th respectively.

In the class for 12 Japanese blooms, dissimilar, the 1st prize was won by Mr. A. CHANDLER; 2nd, Mr. WOOLMAN; 3rd, Mr. TATE.

For 24 Incurred blooms, in 18 varieties, the 1st prize was won handsomely by the Marquis of BUTE, Cardiff Castle (gr. Mr. H. B. Farmer), who showed splendid specimens, his best flowers being Edwin Thorpe, Le Peyrou, a seedling, Wm. Biddle, Eclipse, Nellie Threlfall, Embleme Poitevine, Clara Wells, Romance, Mrs. F. Judson, and Ma Perfection. The 2nd prize was won by Mr. TATE, whose best blooms were Edwin Thorpe (premier Incurred flower), Duchess of Fife, Mrs. F. Judson, Clara Wells, Pantia Ralli, and G. Denyer; 3rd, PANTIA RALLI, Esq., Epsom (gr. Mr. G. Hunt).

The prizes for 12 Incurred blooms were awarded as follows:—1st, Mr. TATE; 2nd, Mr. H. R. FARMER; 3rd, Mr. PANTIA RALLI.

The vase classes for 18 blooms, in six varieties, three blooms in each vase, formed a very pleasing display; the blooms were somewhat smaller than those exhibited on the boards. The 1st prize was awarded to Mr. WOOLMAN; 2nd, Mr. A. CHANDLER; 3rd, Mr. ICGULDEN, Frome.

In the local class for 18 blooms, in not fewer than 12 varieties, the 1st prize was a silver cup presented by the Lord Mayor. This class created a keen interest, and eight exhibitors provided a very creditable display. The trophy was won by Mr. J. W. BRIER, Halifax; 2nd, Mr. J. THORNTON; 3rd, J. HILL, Esq., Bradford (gr. Mr. G. W. Dunsmore).

Mr. THORNTON showed the best exhibit of 12 Incurred blooms; 2nd, H. CLARK & SON, Rodley; 3rd, T. BIRD.

The quality of single Chrysanthemums, combined with the numerous entries in the whole of this section, provided a difficult task for the judges, on account of the very limited space allowed for the display of the vases; but the arrangement of the show, from a decorative aspect, was admirable. In the orchestra gallery specimen Chrysanthemums occupied the whole of the space available. Either side of the Hall was flanked with numerous exhibits in the open classes; immediately in front of the platform the bouquets were displayed to advantage; and at the bottom of the Hall were arranged the vase classes, which have not yet succeeded in supplanting the boards used in the larger classes.

GARDENING APPOINTMENTS.

Mr. J. BONE, for 10 years Gardener to J. D. KOHLER, Esq., Ludlow Lodge, Winkfield, Windsor, as Gardener to Lady Camoys at the same place.

Mr. W. S. STARK, until recently Gardener for 9 years to Col. G. F. SCOTT, Dalgely, North Wales, as Gardener to Sir James W. SCOTT, Bart., The Yews, Windermere.

Mr. T. HAINWILL, for 4 years Gardener at Llanidloes, Vicar's Cross, Chester, and previously Inside Foreman at Ince Hall, Chester, as Gardener to W. F. PARKER, Esq., Warcop House, Warcop, Westmorland.

Mr. WILLIAM E. EASE, for the past 4½ years Foreman at Breaksped Gardens, Herefordshire, and previously at Safford Cross, Esq., The Oaklands, Preston Brook, Cheshire.

Mr. H. GRAY, for 7½ years Gardener to STANLEY BOULTER, Esq., Gatton Park, Godstone, Surrey, as Gardener to E. W. BLESSIE, Esq., at the same place.

Mr. E. F. HAZELTON desires us to say that he will not be leaving Knowsley until the end of the year to take up his appointment at North Myms Park.

Mr. G. H. SEMARK, for the past 24 years Gardener to J. R. FEATHERBY, Esq., J.P., Bleak House, Gillingham, Kent, as Gardener to Admiral Sir CHARLES DRURY, K.C.B., Holmwood, Tenterden, Kent.

Mr. THOMAS J. THOMAS, Gardener at Barnhospeth Hall, Lanchester, co. Durham, as Gardener to A. C. ARMISTEAD, Esq., Kirothgreet, Newton Stewart, N.B.

Obituary.

ALFRED BAILEY.—We regret to announce the death, on the 30th ult., of Mr. Alfred Bailey, gardener at Pen Hill, Bath, and hon. secretary of the Bath Gardeners' Association. Deceased was found lying injured at the bottom of a flight of steps leading to a cellar, and died as the result of his injuries. Mr. Bailey, who was 42 years of age, was a native of Wiltshire. The annual Chrysanthemum Show of the society of which he was for many years secretary was held on the 1st inst., and at the luncheon the president, Mr. Charles Foxcroft, and others, referred to the great loss the society had sustained in the death of their colleague.

ROBERT MACMILLAN.—We regret to announce the death of Mr. Robert MacMillan, of MacMillan & Co., Greenwich, Connecticut, U.S.A., who died at his home on October 9, aged 51 years. Mr. MacMillan was born in Scotland, and at the age of 22 emigrated to the United States of America, and settled at Boston. Later he went to Pearl River, N.Y., where he acquired a reputation as a grower of Chrysanthemums and Mignonette. Subsequently he opened a florist's establishment at Greenwich, Connecticut, where he succeeded in building up a prosperous business.

GEORGE M. WOODWARD.—Mr. George M. Woodward, for 14 years gardener to the John T. Lester estate, and recently gardener to Mr. J. J. Mitchell, of Lake Geneva, Wisconsin, U.S.A., died on October 24. Mr. Woodward was a native of Malvern, Worcestershire. He settled in America 35 years ago, and was a former president of the Chicago Florists' Club.

DEBATING SOCIETIES.

KILMARNOCK AND DISTRICT HORTICULTURAL.—At the meeting of this society, held on the 6th inst., the second lecture of the present series was delivered by Mr. Priest, of Eglinton, his subject being "Notes on French Gardening." Mr. J. Hilliers presided over a good audience and several new members were elected. On December 13 Mr. Smith, Redheugh, will give a lecture on "The Culture of the Chrysanthemum."

LOUGHBOROUGH AND DISTRICT GARDENERS.—The subject of fungus diseases was dealt with by Mr. J. H. Woolley, of the Kingston College, at the last meeting of the association, held in the Town Hall, Loughborough. The lecture was rendered additionally interesting by lantern slides. Specimens of diseased plants, with microscopic slides, were also on view.

READING GARDENERS.—This society held recently an exhibition of a non-competitive character, the proceeds of the exhibition being given to the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund. The show took place in the Corn Exchange. Choice Chrysanthemums were exhibited by Sir Rufus Isaacs, M.P., Leonard Sutton, Esq., Mrs. Bland Garland, and M. H. Foquet Sutton, Esq. Leonard Sutton, Esq. (gardener, Mr. F. Townsend) sent some fine specimens of seedling Chrysanthemums and Gloire de Lorraine Begonias, group on the other side being shown by M. H. Foquet Sutton, Esq., Erleigh Park (gardener, Mr. H. C. Loader). S. Griffiths, Esq. (gardener, Mr. G. Carter) staged a collection of Begonias. J. Okey Taylor, Esq. (gardener, Mr. T. Brown) exhibited a fine collection of Solanums and Begonias. Down the centre of the hall was a magnificent collection of Begonias, provided by S. B. Joel, Esq. (gardener, Mr. Johnson). Mr. W. Howard Palmer, of Wokingham, showed stove plants. An exceedingly pretty rose stand was staged by Mr. Elsie J. Hicks, of Wytwyford, whose flowers being displayed on a decorative framework, the plants were shown by H. Dunlop, Esq. (gardener, Mr. A. Giles). From the gardens at Reading University were shown Apples, Grapes, Orchids and Chrysanthemums. Another exhibit showing the result of both skill and patience was a framed fretwork arrangement of the Lord's Prayer, by Mr. H. J. Wynn. Other exhibitors included Mr. G. Bryant, Miss Cripps (gardener, Mr. G. Durand), Mr. H. Collins (gardener, Mr. A. F. Bailey), Mr. F. Allsopp (gardener, Mr. G. Hinton), Mrs. Bird (gardener, Mr. A. Abrahams), and Mrs. C. Smith (gardener, Mr. R. Taylor).

CAMBERLEY, FRIMLEY AND YOKTOWN GARDENERS.—At the meeting of the above society held in St. George's Room, on the 9th inst., Mr. W. Gregory in the chair, a paper was read by Mr. John Crooks, late of Forde Abbey Gardens, on "Propagation by Seedlings versus Cuttings." Previous to the lecture an exhibition of Chrysanthemums took place and the Society's Certificate was awarded to Mr. F. G. Hull, of Heatherside House Gardens.

SCHEDULE RECEIVED.

Darlington Horticultural Society's autumn flower show, to be held in the Drill Hall, Darlington, on Wednesday, November 22. Secretary, Mr. A. H. Harrow, Priestgate House, Darlington.

VARIETIES OF PIPITS FOR CULINARY USE. *E. Y.*
Culinary: Potts's Seedling (August and September), Lord Grosvenor (September and October), Stirling Castle (October and November), Lane's Prince Albert (November to April), Ecklinville Seedling (September and October), Grenadier (September). *Dessert*: Cox's Orange Pippin (November to January), Mr. Gladstone (July and August), King of the Pippins (October to January), Sturmer Pippin (February to June), Duchess of Oldenburgh (August and September), Worcester Pearmain (September), Newton Wonder (January to March), *Pears (dessert)*: Jargonelle (August), Durodonde (October and November), Beurré Superfin (October), Beurré Diel (November), Glou Morceau (November), Nouvelle Fulvie (December to January), Josephine de Malines (January). *Cooking*: Catillac (December to March). *Plums (dessert)*: Bryanston Gage (mid September), Greengage (early September), Rivers's Early Transparent (early September). *Culinary*: Victoria (late August), Rivers Monarch (end of September). *Damsons*: Bradley's King (mid season) or Farleigh Prolific. *Cherries (dessert)*: Archduke (mid season), Elton (early), Black Eagle (mid season). *Culinary*: Kentish (mid season), Morello. *Currants*: Red Dutch (early), Ruby Castle (late), White Dutch and Boskoop Giant (black). *Gooseberries*: Crown Bob (early), Sulphur, Warrington, Whinham's Industry, Whitesmith, and Lancashire Lad.

BLACK ITALIAN POPLAR: H. W. This plant (*Populus nigra pyramidalis*), would do very well in the heavy, yellow clay, and it is a quickly-growing plant. In addition, Sycamore, Beech, and Hornbeam may be grown. We should, however, advise you to employ a certain number of evergreen trees, especially in those positions where a screen is desired. For the outskirt Austrian Pine would prove satisfactory, whilst Scots and Corsican Pines might be given inside places. All the Pines ought to be planted when not more than 1½ foot high, for they establish themselves more quickly than larger plants.

BOOKS: H. S., *Reichelt's Apples and Pears*, by George Bunyard, price 1s. 9d., post free, from our publishing department.

CREOSOTE ON HOT-WATER PIPES: J. M. Your best plan will be to remove all the plants from the greenhouse on a mild day and then heat the hot-water system to the fullest extent, throwing the doors and ventilators wide open. In this way most of the creosote would be given off as fumes. If, at the same time, you could borrow a blow-lamp, such as is used by painters, you would be able to burn what creosote remains.

DAPHNE INDICA: E. W. The leaves of *Daphne indica* often turn yellow on account of over-watering or a sudden change of temperature. The plants ought to be left in a cold frame or a cold house with an ash bottom, and only placed in a conservatory or warmer structure during the time they are in flower. If kept in a cool house on a stage covered with damp ashes, the plants require but very little water at this time of the year, but thorough drainage is absolutely essential at all seasons to the success of this species.

EXAMINATIONS IN HORTICULTURE: N. P. Students at the R.H.S. examinations in horticulture are not inspected in practical work, and for this reason the certificate has less value than those awarded at the gardening colleges and by the British Gardeners' Association for a knowledge of practical as well as theoretical gardening. The R.H.S. examination is open to all, whether professional gardeners or not. The examination in botany you mention is the only one of its kind in this country.

FERTILE FOR A LOW WALL: E. Y. As the soil is heavy, it would be desirable to improve it by deep trenching and working into it a liberal supply of chalk or lime and burnt garden refuse or burnt earth; then you could grow horizontal double cordons of choice Apples and Pears. As you wish for a quick return, the best plan would be to buy trained trees.

GERARDE'S HERBALS: W. R. H. The price, £50, seems excessive, considering that Quiritch had Gerarde's first edition, 1597, priced at £20, and £21 in his catalogue of 1902-3, and in his catalogue for 1907 £17 10s. and £18 10s., and in Wesley's catalogue for 1905 the price quoted is £18 15s.

GERBERA JAMESONII: A. H. This plant requires a cold greenhouse or frame, although in very favoured situations it may be grown successfully in a border in the open garden, or in a rockery, merely protected during the winter by a covering of dry leaves or light litter. If grown in pots and wintered in a cold frame, the plants will be benefited by a protection of dry leaves or litter in the same way, removing some of the plants to the cold greenhouse early in the New Year. The best compost is one consisting of turfy, yellow loam mixed with a good sprinkling of silver sand. The type has fine scarlet flowers, but there are varieties of various tints, and all are very pretty. The plant may be propagated from seeds very freely. Although scarcely so hardy as *G. Jamesonii*, the hybrids are very easy to grow as greenhouse or frame plants. Gerberas thrive best in a sunny position, where they last a long time in bloom.

HIBERNIAN AND ALPINE PLANTS FOR A SEA COAST GARDEN: Geo. Lawrence. Much depends on the aspect of your garden, whether it is partly sheltered or fully exposed to wind and sun, and on the nature of the soil. The following plants are most likely to succeed, except in very unfavourable conditions:—*Alyssum saxa-*

tile, *A. s. var. citrina*, *Aubrietias* (various species), *Arabis alba*, *Achillea Ptarmica* ("Pearl"), *Althæa rosea*, *Anchusa italica*, *Antemissa tinctoria*, *Aquilegia* ("Long-spurred"), *Campanula persicifolia*, *Catananche coruella*, *Centaurea montana*, *Cheiranthus Cheiri* ("Wall-flowers"), *Delphinium*, *Dianthus plumarius*, *D. cæsius*, *Erigeron speciosus*, *Eryngium amethystinum*, *Geranium arvense*, *Gypsophila paniculata*, *G. repens*, *Helenium autumnale*, *Heimericallis flava*, *Iberis sempervirens*, *Oenothera fruticosa var. Youngii*, *Papaver orientale*, *Lilium candidum*, *Pentstemon*, *Polemonium coruleum*, *Potentilla argyrophylla atrosanguinea*, *Saponaria ocyroides*, *Saxifraga umbrosa*, *S. cordifolia*, *Scabiosa caucasica*, *Campanula medium* ("Canterbury Bell"), *Silene maritima*, *Solidago canadensis*, *Spiraea Aruncus*, *Statice limonium*, and *Zauschneria californica*.

HONEY FERMENTING: Anxious. The honey ferments because it is not ripe. You must either place the honey in a ripener (one holding 1 cwt can be purchased at any appliance dealer for 7s. 6d., carriage paid), or no honey must be extracted from combs unless it is sealed. Sealed honey will never ferment if kept in a dry place. When little honey is extracted it may be kept in the extractor for a few days in a room where the temperature is more than 80° F., the unripe honey will then rise and may be fed back, while the thicker portion may be run off through the valve at the bottom.

INSECT ON PHLOX: T. R. The larva sent is that of the garden swift moth (*Heplialis Cupulinus*). These larvae continue to work until the spring. They may be cleared out of the soil by hoeing in Vapourite or Finnite.

MICHAELMAS DAISIES: V. S. The *Amellus* section of the genus *Aster* consists of three species:—*A. alpinus*, *A. Amellus*, and *A. latifolius*. *A. Amellus* is the Italian Starwort; it grows about 2 feet high and has large purple flowers. All three species are natives of Europe. *A. ericoides* is a native of North America; it grows about 3 feet high, is much branched, and has small leaves and white flowers. Of this species there are now many garden varieties. *A. laevis*, also from North America, grows from 2 to 4 feet high, and has ovate or oblong leaves 4 to 5 inches long, with medium-sized, violet-coloured flowers. *A. Nova-Anglie*, or New England Starwort, grows up to 7 or 8 feet high, with stout stems, leafy at the top, and large rose-coloured or violet-purple flowers. The whole plant is coarsely hirsute or hispid. This species mainly inhabits Canada, but it is also found in the United States. *A. Novi-Belgii* (New York Starwort) is found on the eastern side of the United States, and varies from 4 to 8 feet in height. The flowers are large, and vary in shade of colour from light purple to white. It is the commonest of our *Asters*, and there are many varieties, one of the most typical being that known as "Robert Parker." *A. turbinellus*, *N. America*; *A. pyrenaicus*, *Pyreneas*; *A. Thomsonii* *Himalaya*; *A. cordifolius*, *N. America*; *A. dumosus*, *N. America*; and *A. corymbosus*, *N. America*, are all good species.

NAMES OF FRUITS: W. G. C. B. 1. Hawwell Souring; 2, not recognised; 3, Annie Elizabeth; 4 and 13, Melon; 5, a very fine fruit of Claygate Pearmain; 6, Queen Caroline; 7, Emperor Alexander; 8, Beauty of Kent; 9, Northern Greening; 10, not recognised; 11, Dumelow's Seedling; 12, Waltham Abbey Seedling.—*G. White*, 1, send a better specimen; 2, Waltham Abbey Seedling; 3, Dumelow's Seedling; 4, probably a local variety; 5, Winter Greening.—*E. F. C. F.* 1, Cox's Orange Pippin; 2, Worcester Pearmain; 3, Winter Nonesuch.—*Dorby*, 1, Golden Russet; 2, Rivers' Nonesuch.—*W. H. S.* 1, A fine fruit of Emperor Alexander; 2, Alfriston; 3, Adams' Pearmain; 4, Cornish Gillflower; 5, Gemet-Moye.—*Shawton*, 1, Cornish Gillflower; 2, Annie Elizabeth; 3, American Mother; 4, Prince Albert; 5, Histon Favourite; 6, Warner's King.—*Bentley*, 1, Mère de Ménage; 2, Hoary Morning; 3, Brabant Bellefleur; 4, Beurre Diel; 5, Vicar of Winkfield; 6, Winter Windsor.—*Harrison*, a,

Emperor Alexander; b, Prince Bismarck.—*J. A. J. B.* 1, Cornish Aromatic; 2, Roundway Magnum Bonum; 3, Fearn's Pippin.—*H. J. O.* 1, Gravenstein; 2, not recognised; 2 fruits without numbers.—*Ickleton*, 1, Baxter's Pearmain; 2, Mabbott's Pearmain; 3, Franklin's Golden Pippin; 4, Pimston Nonpareil; 5, Sheep's Nose; 6, Colonel Vaughan; 7, Directeur Hardy.—*Miss Baird*, Uvedale St. Germain, a stewing variety, never fit for dessert.

NAMES OF PLANTS: A. Williams. *Viburnum Lantana*.—*W. H. L. Wells*, 5, *Crataegus orientalis*; 6, *Saponaria officinalis* (not valuable); 7, *Juglans nigra* (Black Walnut). We do not undertake to name varieties of Roses.—*H. M. M.* 1, *Codiaum* (*Croton*) *longifolium*; 2, *C. Weismannii*; 3, *Viola cornuta*.—*H. J. Marchant*, *Helianthus orgyalis*.—*Denby*, 3, *Rhamnus hybridus*.—*A. W. T.* *Osmanthus aquifolius myrtifolius* (the adult state of this species). *B. A. S.* *Remondia chinensis*.—*McGredy & Son*, *A. species of Dussma* or *Azathos* ma; send when in flower.—*H. C., Oakfield*, 1, *Catastemon macrocarpum*; 2, *Maxillaria picta*; 3, *Eria bicolor*; 4, probably a *Pholidota*; a single flower is not sufficient for identification.—*W. B. K.* A small form of *Cyrtanthus angustifolius*.—*Cheshire*, 1, *Asplenium bulbiferum*; 2, *Pteris tremula*; 3, *P. longifolia*; 4, *Cyrtomium falcatum*; 5, *Sansevieria zeylanica*.—*W. T.* *Cypripedium Harrisianum*. The other flower cannot possibly be a sport from it. It is a seedling which has become associated with the original plant of *C. Harrisianum*.—*W. F., York*, 1, *Codiaum interruptum*; 2, *C. chrysophyllum*; 3, *C. angustifolium*; 4, *C. Weismannii*; 5, *C. variegatum*; 6, *Adiantum Farwellense*.—*W. H. J.* *Amaranthus tricolor*.—*V. W.* 1, *Oncidium abortivum*; 2, *Angrecum Kindtium*; 3, *Odontoglossum blandum*; 4, *Cypripedium venustum*; 5, *Ada aurantiaca*; 6, *Lycaste cruenta*.—*R. H.* 1, *Pteris tricolor*; 2, *P. argyrea*; 3, *Adiantum concinnum*.—*Ponica*, *Maurandya scandens*, generally known in gardens as *Lophospermum*. This summer climber may be grown from seeds annually, or propagated by means of cuttings. It needs the protection of a greenhouse during the winter.—*Florence*, *Taxodium distichum*.

ORCHIDS DISFIGURED: A. W. There is no disease present in the leaves of your Orchids; the injury has been caused by the precipitation of moisture on the foliage, due to damping the house when the temperature was declining.

PEARS DISEASED: E. P. D. Your Pears are affected with Pear scab. Great care must be taken to remove all the diseased and dead shoots, and more especially the affected spurs. Spray the trees with the Bordeaux mixture, commencing spraying when the leaves are unfolding.

PEELEN'S DUNG AS MANURE: J. C. Dunlop. See reply to *G. W.* on fowl's dung as manure, in the last issue, p. 348.

PLANTS DYING OFF: A. J. H. There is no disease present. The trouble is due to some wrong treatment of the plants.

"SPRAIN" IN POTATOS: G. E. G. The cause of "sprain" in Potatoes is not known. A lack of lime in the soil favours its development.

WEIGHT OF GRASS SEED: M. B. G. The weight of grass seed varies considerably. A bushel of high quality seed will weigh more than the same quantity of inferior seed. Again, well cleaned seed will weigh more per bushel than only partially cleaned seed, whilst in mixtures of grass seeds, whether for agricultural purposes or for lawns, the weight of a bushel will vary considerably according to the seeds of which the mixture is composed. A mixture of extra fine dwarf varieties weighs about 32 lb. to the bushel, whereas mixtures of ordinary grass seed weigh about 25 lb. and often less to the bushel. This is in consequence of larger seeds being used, such as rye grass. ☉

Communications Received. H. L. J. W. L., H. J. C. F. B., Donagh, G. M. T., Dalkeith, J. W. A. D., W. E. B., H. S. C., W. H. W., J. D., W. W., A. O., H. S. T. H. & Co., Colombo, J. R., Enfield, W. S., F. B., C. R., Dublin, A. C. B., J. W. B., Hertford, W. D., E. M., A. P. F. W. J. W. L., M. C. R. A. P. R., J. V. H. P. O. A. C. J. E. B. W. H. F. C. H. E., Rev. W. W., J. G. W. A. C., Capt. S. G. R., G. H. W. W. A. S., G. P. Vane, Mrs. M. E. R. A. M., J. L., J. T. H. W., E. H. E. L., Burford, Malmaison.

BOWES MUSEUM PARK.

The Bowes Museum Park at Barnard Castle extends to about 20 acres and contains the beautiful museum shown in fig. 153. Both park and museum were presented to the public by the late Mr. John Bowes, of Streatham Castle, Co. Durham, and his wife, Josephine Benoit, Countess of Montalbo. The foundation stone was laid on November 27, 1869, and the museum, which cost a quarter of a million, was formally opened to the public on June 10, 1892, by Sir Joseph Whitwell Pease, Bart., M.P. It contains a collection of natural history specimens, some exceedingly fine porcelain and pictures, as well as a general collection of interesting objects from all parts of the world. The park towards the front of the building is laid out as an Italian garden, with sloping banks on either side, and contains in the centre a series of geometrical flower-beds, some of which are planted with perennial plants, including such Roses as the varieties Hugh Dickson, Caroline Testout, La France, Grüss an Teplitz, General McArthur, Richmond, and Mrs. W. J. Grant. There are also many climbing varieties, and the bed of Dorothy Perkins (see fig. 154) was planted three years ago, and measures 18 feet in diameter. In spring the beds are gay with the flowers of all kinds of bulbous plants, Wallflowers, and many other spring-flowering subjects.

The park immediately surrounding the building is beautifully laid out with flower-beds, and is well wooded throughout. Hardy herbaceous plants are extensively planted, and there are beds furnished with Rhododendrons, and, in summer, with Lilioms of all the hardy kinds. The illustration in fig. 152 affords a view of this portion of the grounds in summer, when the beds are furnished with flowers.

Within the last five years, since which time Mr. F. C. Dalgarno has had charge, great alterations have taken place in the arrangement of the park. New lawns have been laid down, flower borders planted, many fine varieties of trees and shrubs planted, and the grounds generally laid out. Last year a new nursery was formed for the rearing of trees, shrubs, &c., and this year a range of greenhouses has been erected. A public bowling green, 40 yards square, has been formed, and its boundaries planted with

shrubs. A tea-house has also been opened in the grounds.

The park is situated close to the river Tees, 15 miles from Darlington, westwards, at an altitude of 800 feet. Trees and shrubs succeed remarkably well, including the Spanish Chestnut, *Cedrus Deodora*, most of the *Coniferae*, the London Plane, *Quercus Ilex* (Holm Oak), *Q. coccinea*, *Acer pictum rubrum*, and *A. Negundo*.

THE ROSARY.

MOLLY SHARMAN CRAWFORD AS A WHITE BEDDING ROSE.

THIS beautiful Rose is proving to be the best tea-scented Rose for garden decoration which has been introduced to cultivation for many years: it flowered well in the wet season of 1910



[Photograph by F. Yeaman.]

FIG. 153.—BOWES MUSEUM, BARNARD CASTLE, NEAR DARLINGTON.

gundo. Verbenas and Violas do especially well. It is intended to form a sub-tropical garden, and also an ornamental lake. The park is visited by large numbers of visitors during the summer, and, with the museum, is one of the chief attractions in the north. Ample funds, vested in trustees, have been left to maintain the park and museum, and the future of this pleasant rendezvous for those interested in natural history and pleasure gardening is thus secured.

and during 1911 has proved better still, for it has evidently revelled in the continuous sunshine of this torrid summer.

It seems, moreover, to be capable of supplying what we had long been looking for, a really first-class white bedding Rose. Such a Rose must flower continuously, like a *Pelargonium*, from June to November, and the flowers must not be produced here and there, but over the whole bed for the whole period. Molly Sharmar Crawford has done this for me during the present year, and I can say the same as regards my own garden of but two other varieties, namely, *Richmond* and *Dr. J. Campbell Hall*. Moreover, during the very hot weather Molly Crawford had the pull of both of these, for the rain took all the shape out of the *Doctor* and both colour and shape out of *Richmond*; the buds and flowers were there, but, except for the bright colour they showed when viewed at a distance, they were useless. Not so was it with Molly Sharmar Crawford; the flowers produced during the hot weather were no doubt small, but they never really lost their form, while the colour, being white, was unaffected.

Molly Sharmar Crawford was introduced by Messrs. Alexander Dickson & Sons in 1908, and before that date, excluding the dwarf *Polyantha*, perhaps our best white bedding Roses were *Hon. Edith Gifford* (Tea), *Mme. Pernet-Ducher* (H.T.), and *Augustine Guinoisseau* (H.T.). All these were, and still are, quite good bedding Roses, but the liability to mildew, the attention to dis-budding required by the first, and the want of real continuity of flowering in the two last named Roses must prevent their attaining the front rank in this capacity.

Frau Karl Druschki is, perhaps, one of the very worst Roses we have for bedding. It has unfortunately been recommended for that purpose in the N.R.S. Catalogue, and its popularity is such that many have tried it in that fashion, but the bed is satisfactory, if at all, for only a short time at the beginning of the season. After



FIG. 152.—VIEW IN BOWES MUSEUM PARK, DURHAM.

at long intervals the bed no doubt gives us a second and even a third flowering, but these later flowers are for the most part borne on great straggling shoots thrown up, after the manner of the H.P.s, from the base of the plant, and though flowers for cutting may often be found, the bed becomes untidy and a failure. Some try to regulate this extravagance of autumn growth by pruning very lightly, and leaving long leggy plants; to some extent they may attain their object, but I fear only at the expense of unsightliness through the whole year, and even then the period of flowering of the bed, as a whole, is but short; in fact, the habit of growth makes the Rose altogether unsuitable for a bedder, admirable and beautiful though it may be in other capacities.

Habit of growth is, in fact, a most important factor in the making of a bedding Rose, and

fatal to many of our most beautiful Tea-scented Roses regarded as garden plants. The foliage also is good and healthy, showing little liability to the attack either of mildew or black spot, so far as my experience has gone. The young shoots are of the beautiful red tint, familiar to us in the Tea-scented family, and the bark ripens to a good dark green with a smooth surface.

In considering the merits of a Tea-scented Rose, hardiness is a question of the first importance. Since the introduction of this Rose we have not suffered from a really trying winter, and therefore it is necessary to write with some reserve on this point, but in the four years during which I have grown Molly Sharman Crawford I have not yet lost a plant, nor had one badly damaged by frost, while the only protection they have had has been that about the end of the year the plants have been lightly earthened

Rose, generous treatment and a rich root run are necessary, the constant and continuous production of the wealth of blossom we now expect from Roses in the first rank as bedding plants must necessarily make a great strain on the resources of the plant, and this strain must be met by the supply of sufficient and abundant food within reach of the roots to make good the waste that is taking place. When I first had Molly Sharman Crawford I planted it in the higher and sandier part of my garden in the near neighbourhood of a south wall, thinking that it belonged to a delicate class and might require this protection. Later, however, it was moved to a lower part of the garden into a well-made bed with a deeper root run in more generous material, and the plants have responded well to this treatment. They received the usual supplies of weak liquid manure in May and early June,

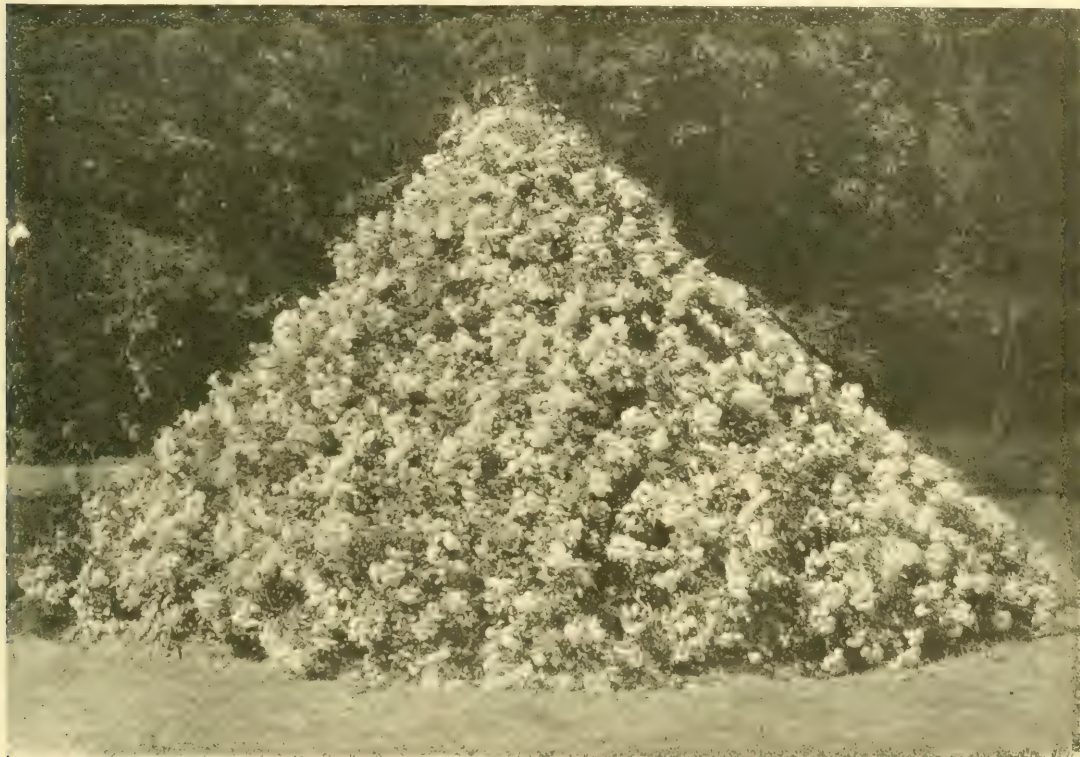


FIG. 151.—MOLLY SHARMAN CRAWFORD, IN ROYAL MUSEUM PARK.

(The flowers are of a pale pink colour.)

Molly Sharman Crawford is in this respect very good. It is true that it does not, like Mme. A. Mari or Mme. Jean Dupuy, spread over the bed till the latter is completely covered, so that the bed itself is almost lost sight of in the mass of the whole bed. In this respect the effect produced by Molly Sharman Crawford may not be so satisfactory, but it is very good nevertheless; and it carries this compensating feature that the stems are carried out in a well-shaped little bush of straightish stems, on the top of which the flowers are carried well above the general level of the foliage. The arrange of the flowers is, in fact, excellent for a bedding Rose, the flower-stalks, being fairly rigid, hold the flowers well, with little or none of that tendency to droop the head which is so

up with a little fine soil or sifted ballast (i.e., burnt clay), which last-mentioned material makes perhaps the most satisfactory and efficient protection for all dwarf Roses. This protection has been scraped away and hoed into the beds at pruning time in early April. So far, therefore, as my experience has gone, I think the Rose may be pronounced hardy for its class, and it does not seem to be one of those Teas which perversely make their finest shoots in autumn just as growth should be ceasing, and so cannot possibly ripen, but have to be cut away in spring. On the contrary, the wood generally ripens well, and therefore may be relied on to make good growth in the following year.

I should perhaps add that to get the best results from this, or, indeed, from any bedding

but since the middle of June no water whatever was given, nor have they shown any signs of wanting it.

No doubt the Rose has, with many other Teas, revelled in the sunshine of the past summer, but a Tea-scented Rose that will do so well, both this year and in the wet summer of 1910, seems worthy of more than the passing attention of Rosarians. *White Rose.*

ROSE MADAME HECTOR LEULLIOT.

I HAVE found this Rose very free flowering here if treated as *Cloire de Dijon* and allowed to grow to its full limit and to get furnished with small twigs at the end of the branches. The flowers are of a most wonderful colour, and quite equal in beauty to Turner's *Crimson Rambler*. *F. K., Bath.*

THE ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.

(A lecture given before the Royal Horticultural Society on 11. May last by Mr. Edward White, hon. managing director.)

THE Council of the R.H.S. has courteously placed the lecture hall this afternoon at the disposal of the directors of the Royal International Horticultural Exhibition, and so enabled them to call attention to the great event of next year. Perhaps one may go so far as to call it the great horticultural event of this generation.

Many of the flower shows held throughout the country have developed into important affairs, but not one has approached, in the British Isles, the great International Horticultural Exhibition of 1866. Although at first sight it seems surprising that no attempt has been made to repeat the great success of that show, those who have taken a part, however modest, in the organisation of such an event can appreciate tolerably well the reason for such a long interval.

But there have been some international displays in recent years at Paris, Ghent, Berlin, Haarlem, Florence, Lyons, Turin, and elsewhere, and one will also take place in Russia in 1915.

Each of these important affairs has presented special and valuable lessons in horticulture, and English visitors have quitted them with a persistent feeling that the time has arrived for British gardeners once more to show the world the utmost efforts of which they are capable.

The Flemish town of Ghent claims an important place in the history of horticultural exhibitions. It is there that the Royal Society of Agriculture and Botany holds every five years a great show, which dates back intermittently for some 300 years. Visitors to the last show, held in 1908, will remember particularly the magnificent displays of Azaleas, Camellias and Orchids, and the charmingly-artistic effect of the arrangement of the exhibition with roomy paths and panoramic backgrounds. It may be claimed that, on that occasion, English exhibitors scored a great triumph in the Orchid class by the marvellous display made by Sir George Holford.

The relations between leading French and English horticulturists are of a very happy nature, and many of the latter make a point of attending the periodical shows at Paris, which always add to one's admiration for the artistic and decorative ability of our neighbours.

The completeness of the Berlin Exhibition in 1909, which was held as early as April, was a revelation to English visitors. The show of fruit for such a time of the year was surprisingly good.

A wonderful show of Tulips was seen at last year's Jubilee Exhibition at Haarlem, where the great bulb gardens, for which the town is famous, were to be seen displaying a galaxy of beauty in form and colour.

The chief characteristic of our own exhibition of 1912, at the end of May, will probably be the all-round quality of the exhibits rather than the supremacy of any one class, except perhaps Orchids. Some few objections, by the way, may be raised to the date of the show, but objections would be inevitable whatever season was fixed, and the days decided upon after the most careful consideration by the directors are undoubtedly the most convenient generally and offer the best all-round opportunities for the display of British horticulture in all its branches. It has also been proved by experience on many occasions that the public are more eager to attend spring shows than those held later in the summer.

The dear old phrase, "horticulture in all its branches," falls very easily from one's lips. This is not to be wondered at, considering the amount of oratory for which it has been responsible since the days of Gerard and Parkinson. It would be useful sometimes to consider what it really means, instead of using it in the automatic fashion to which we have become accustomed. As the exhibition is designed to serve horticulture in all its branches, it will be legitimate to give a moment's consideration to some of the branches and see how broadly they spread.

Many of our most busy clung to our own particular limb to realise of what a giant tree

it forms part and the great economic importance of that tree in our country.

We ought to be in an exceptional position to appreciate these facts when we have before us the statistics of the census of production with regard to the horticultural industry which will very shortly be published, and should be well worth the study of all who are interested in the progress of the art.

Taking first that branch of chief interest to the members of this society. We should look for particulars of the great nursery, florist, bulb and seed trades; incidentally we might hope to learn the extent of the acreage of the most highly or intensively-cultivated land to be found in the country, and we might estimate roughly therefrom the number of employes occupied and maintained in the handling of these great industries.

Well organised though they may be, thanks in a great measure to the Royal Horticultural Society, these trades represent in volume, however, but a small proportion of the horticultural industry, or even of that part concerned with the management of gardens.

To realise this, we need only picture the comparatively few gardens we know personally, and think of the quantity and value of the other materials used in their construction and maintenance, the architectural features and adornments in conservatories, horticultural buildings, garden ornaments, fencing and gates, the varied machinery, implements, tools, manures, fertilisers and all other details which represent some branch or other of the craft.

Among other points of information we might glean some idea of the number of owners of private gardens of a considerable area and how many million acres of land in this country are devoted altogether to gardens and parks, both public and private, or compare the area of glass-covered land now existing in the country with that of fruit and market gardens.

In these days of small holdings; innumerable market gardens, and fruit farms, it is difficult to say exactly where horticulture ends and agriculture begins, and it is not unlikely that the latter industry will be credited in the census returns with a large share of these, the most extended branches of the tree of horticulture. This point will be noted by those anxious to assert on behalf of the art all the importance that rightly belongs to it.

In short, an ideal census of the productions of horticulture in all its branches would contain statistics concerning nurserymen, seedsmen, and florists, vegetable and fruit growers, in field and under glass, wholesale and retail distributors, manufacturers of horticultural buildings and the many accessories required for the maintenance and upkeep of gardens, professional gardeners, artisans, and labourers. We must not forget the scientific, literary, and artistic professions and crafts which influence so greatly the practice and popularity of the industry, and do so much to initiate trade and employment.

There is little doubt that it would be possible to extract from a comprehensive census of horticultural production a strong case for the formation of a special department of horticulture subordinate to the Board of Agriculture. A decision to this effect by the Board would be an appropriate coincidence with the great demonstration which the horticultural industry is preparing for next year.

I have laboured somewhat at this question of the economic importance of horticulture in the aggregate, because this special side of what is generally called "gardening" does not often receive the attention it deserves.

One of the greatest assets that horticulture possesses is the unceasing sympathy shown by the Royal Family in its welfare, and the pleasure with which the directors received King George's gracious promise to open the exhibition on May 22 next, at 12 o'clock, will be shared by all who are interested in the success of the exhibition.

The considerable difficulty in securing a suitable site was eventually overcome by an arrangement to occupy 21 acres of the grounds of the Royal Hospital at Chelsea, which include the Ranelagh Gardens. The position is ideal in many respects, among its advantages being two ample entrances from Queen's Road and the Chelsea Embankment respectively, within a few minutes' walk from Sloane Square station. There is open space for tents covering nearly

5 acres, and there are, in addition, several broad, shaded avenues, and the sheltered and mature gardens, which offer a good sample of Middle Victorian landscape gardening, and will make a perfect background for outdoor exhibits and the rock and water gardens, which are expected to be of particular interest.

It is proposed to illuminate the grounds and engage the best military bands available, so that, given fine weather, a series of delightful floral fetes will be feasible. A provisional plan of arrangement has been issued, and it is the determination of the directors that there shall be no avoidable cause of complaint in the matter of ventilation and space in the gangways. In this respect I may mention that the largest tent, which will cover nearly $\frac{3}{4}$ acres, is divided into five spans, 45 feet in height, with special ventilation for the whole length of each ridge, the total length of the tent being about 220 yards. The gangways are from 15 feet to 20 feet wide. The show space in this tent amounts to nearly 75,000 square feet, and will provide, if necessary, table run of nearly half a mile.

It is necessary to state that the tenancy of the premises will be too short to enable the production of an artistic scheme to compete on equal terms with the permanent sites of some Continental exhibitions, but at salient points striking effects will be produced from views of the great expanse of flowers, and the general arrangements will be much less complicated than are usually found at such exhibitions. It may be mentioned that the 1866 exhibition was held on the site now occupied by the Natural History Museum at South Kensington, adjoining the then existing premises of the Royal Horticultural Society.

Experience has proved—fortunately in realms other than of horticulture—the folly of entering upon such an enterprise without ample financial guarantees. We are happy to state that the support already accorded, both in the matter of guarantees and subscriptions, has been very encouraging. This is not to say that the guarantees and subscriptions are no longer earnestly invited. They are still wanted, and may be confidently expected in view of the substantial privileges which are offered in return. A subscriber is in effect the prudent person who buys a ticket or tickets beforehand at a cheap rate, and at the same time is entitled to the happy feeling that he is becoming the patron of a most worthy cause. This would, of course, be an ungracious way of describing the liberality of many donations, among which may be mentioned that of your own great Society to the amount of £1,000, with a further guarantee of £4,000. From all appearances there is little need to worry about the guarantee, and it is worth noting that £1,000 represents the contribution of a trifle over 1s. for each guinea member of the society. In return for this the reductions of the charges to Fellows are about 25 per cent. on the first day, which may be looked upon partly as a subscriber's day, and of 50 per cent. on all days other than the 1s. days, so that the Fellows may congratulate their council on having achieved another of those strokes of business which do so much to popularise their Society.

The published lists respectively of guarantees and subscriptions are £4,000 and £16,000.

The directors have recognised the desirability of encouraging the attendance of professional gardeners, and have therefore reduced the charges of entry very considerably to this class of visitor.

The directors have been assisted immensely in their work of organisation by the systematically kept records of the 1866 exhibition, and the balance sheet of that show has also been of great use in estimating costs. We find that the expenses of this exhibition amounted to something over £12,000, the final profit being about £3,500. This substantial sum was expended in making a donation to the Gardeners' Royal Benevolent Institution, and in the purchase of the valuable Lindley library, which is such a cherished possession of horticulturists. Needless to say, the expenses of 1912 must be considerably greater. Putting aside other considerations, this will be easily understood in examining the respective schedules for 1866 and 1912.

In order that I might have an authoritative statement on this subject, I asked Mr. Harry J. Veitch (who, as is well known, is the only

white varieties Wageri, Reineckiana, Victoria Regina of a sky blue tint, Queen Mary, Vestalis, Arnoldiana, and similar forms. All the showy Cattleyas are represented in numbers, especially good being C. Dowiana aurea, some of which are in flower; C. Mendelii, and a good recent importation of C. Gaskelliana.

It is in this nursery that the first good white *Lælia purpurata* was flowered, and a selection of the best forms are still retained, although the species is not now grown in such quantities as formerly. The stock is so varied that it must suffice to mention only the important large batches noticed on a recent visit. Among these was a fine lot of the pure white *Trichopilia Backhousiana*; a quantity of the pretty *Oncidium pulchellum*; a fine stock of *Oncidium flexuosum*, which is so useful for cut flowers and which is grown as dwarf plants by taking off the top two or three pseudo-bulbs of the tall pieces and potting them several together. Thus they make stronger plants, which are more compact and floriferous. There were white varieties of *Lælia anceps*, fine specimens of *Angraecum sesquipedale*, and a few *A. infundibulare*, one bearing its large funnel-shaped white flowers; *Vanda cœrulea*, *V. Kimballiana*, and other *Vandas*; *Scacabium* and *Aerides*; a batch of *Oncidium macranthum* in spike; another of *Maxillaria Sandariana* and *M. grandiflora*; *Lælia pumila* of the best old type, with some in flower; *Renanthra Inschootiana*; a large quantity of *Odontoglossum crispum* from the recently-imported stage up to the strong specimen with stout spikes showing; a good selection of *Cymbidium* with two plants of *C. grandiflorum* in spike. A good collection of *Lycastes*; a batch of *Fernando Po* Orchids, which include *Ansellias*, *Angraecums*, and *Eulophia lurida*; *Dendrobium Phalaenopsis Schröderianum*, *D. Stetterianum*, and *D. formosum giganteum* in bloom; a house of *Cypripedium* with yellow and other forms of *C. insignis* in bloom, and various hybrids, including *C. Minos Youngii*, *C. Germaine Opoix*, *C. Southgatense*, and *C. Thalia* Mrs. Francis Wellesley.

Home-raised hybrid Orchids are rapidly on croaching on the space given the species here, as in most other establishments, and great interest is taken in raising them from seeds, for which purpose a low, span-roofed warm house is arranged, the one half fitted with cases containing the seedlings in their earliest stages. An interesting experiment is being made here to catch the very small flies which do mischief to the seeds. Plants of *Pinguicula caudata* are raised on pots among the seed-pans, and they effectually trap a large number of the insects. The other part of the house has young plants of various interesting crosses, and in other houses are good batches of plants, especially *Lælio-Cattleyas*, *Brassia-Cattleyas*, *Odontoglossums*, and *Odontodas* in all stages of growth up to the flowering size.

Of batches in flower or bud, there are some very fine *Cattleya Fobia*, *C. Maggie Raphael*, including the white form; *C. Empress Frederick*; *C. Hassallii* (abiata × *Empress Frederick*), a fine bold flower of bright colour; *C. Portia* and other hybrids of *C. Bowringiana*; *C. Minucia*, one plant having 12 flowers; *C. Clarkie*, *C. Iris*, and the pretty, fragrant, and variable *C. iridescens* (bicolor × *Eldorado*) raised here.

A very interesting batch is *Lælio-Cattleya Walter Gott* (*L. C. Blethleyensis* × *C. bicolor*), some of which have been in flower for months past, and yet others are in bloom or bud. The batch has given many indifferent varieties, but a proportion have very showy flowers, one section showing the elongated labellum of *C. bicolor*, while the other has in some degree the more ample lip of *L. C. Blethleyensis*. Good specimens of *Lælio-Cattleya Canhamiana*, *L. C. Dominiana*, *L. C. eximia*, *L. C. Aphrodite*, &c., and well furnished with sheaths, and the showier hybrid *Odontoglossums* and *Odontodas* are promising well for flower. J. B.

NURSERY NOTES.

KELWAY'S NURSERIES, LANGPORT.

For more than 20 years the name "Kelway" has been sufficient to conjure up before my mind's eye glorious visions of all the varied and beautiful flowers of the hardy border. I have very frequently wished to see with the visual eye what has so often been seen in imagination, but until a few months ago my desires remained unfulfilled. Now, however, through the kindness of the firm in sending me a special invitation to visit their grounds at Langport, a long-felt desire has been gratified, and I possess at last some idea of the magnitude and importance of the work they carry out in Somersetshire, and at the same time have pleasing recollection of a most interesting visit.

Langport is a typically old-world English town, where the streets are by no means numerous nor yet remarkable for their width. To anyone interested in gardening a walk through this quaint old place cannot fail to be deeply interesting, on account of the numbers of houses in which the front-room windows are devoted to plant-growing. The plants as a rule are so well grown that it is rather difficult to restrain oneself from standing and staring at them through the windows—a proceeding which may perhaps, after all, please the owners rather than otherwise. Whether or not the influence of Kelway's Nurseries in the neighbourhood has anything to do with the extensive window gardening carried out in the town it is difficult to say, but it certainly seems to me that there is some kind of connection between the two.

Langport Nurseries lie about a mile beyond the town, and are very easily reached by means of a main road leading direct from the station. They are beautifully situated among well-wooded estates, and, as may be readily imagined, add at certain seasons of the year considerable colour and beauty themselves to the already pleasing scenery of the neighbourhood. Fortunately for the proprietors, there is a plentiful water supply. In some parts of the grounds this is obtained from deep wells, from which it is pumped by means of picturesque windmills, while in another portion of the nursery a steady, flowing stream provides all the water required to supply the various crops with sufficient moisture.

Although the primary object of my visit to Langport was to view the great wealth of *Pæonies* growing in these nurseries, I was, unfortunately, unable to go at the time appointed, owing to unavoidable delays, so did not see these beautiful flowers at their best. The wreck of their glory, however, gave some faint indication of what they must have appeared like while in full bloom. Several acres of land are devoted to the culture of this popular plant, and it is propagated by the thousand every year. The method adopted at these nurseries for increasing the stock is to split up large plants into single pieces, and plant them out in well-prepared ground in rows a couple of feet apart and about 18 inches from plant to plant. After the first season every alternate plant is taken up year by year and sold, until those remaining are about 6 feet apart, when they are used as stock and divided up into single pieces. As one views the acres of these *Pæonies*, one cannot help wondering where purchasers are found for them all, and what actually becomes of the millions of plants that are distributed from this and other nurseries every few years.

Next to the *Pæonies* in importance at these nurseries is the remarkably fine and extensive collection of *Delphiniums*. These, too, are multiplied by hundreds of thousands every year, and still there appears to be no falling off in the demand for them by amateur and other gardeners. The *Delphiniums* are propagated by cuttings, which are struck during autumn and spring and during early summer planted out in rows a foot apart, to be thinned out (after the first season) year by year in the same way as is done in the case of the

Pæonies. There were so many lovely varieties in evidence that it was difficult to pick out any for special mention. However, I noted four which appeared to be extra fine, even for such a select collection. The Rev. E. Lascelles is a variety having delightful, cobalt blue sepals with a plum and white eye and a very massive inflorescence; *Persimmon* is a very striking variety with deep-blue flowers borne on a branched raceme, and continues to flower for several months at a time, while *Thunderbolt* produces large, dark-purple blooms. The fourth especially good variety noted was *D. grandiflorum* fl. pl., which was bearing at the time a light, graceful inflorescence, and its appearance indicated that it was admirably suited either for the herbaceous border or as a cut flower for room decoration.

In addition to the huge collections of *Pæonies* and *Delphiniums*, Messrs. Kelway & Son have also very extensive collections of *Sweet Peas*, and about 10 acres of nursery ground is set aside for their culture. It is purely for the purpose of seed production that these are grown, and the firm sends the seed of *Sweet Peas*, as well as that of other flowers and vegetables, to every part of the world where the conditions are suitable for their cultivation. All the newest varieties, as soon as they are offered for sale by their raisers, are grown, and, after being thoroughly tested, put on the market. Every precaution is taken in the selection of seed to see that it is gathered only from the healthiest and best-grown stock. Great care is also taken to keep the plants properly staked, as it has been found from experience that if the pods touch the ground the quality of the seed is considerably lowered.

While the three classes of plants mentioned seemed to me on the occasion of my visit to be the outstanding features at Langport, there is scarcely any hardy florist's flower—which is not well and extensively grown. *Gladioli*, *Scabious*, *Pentstemons*, *Erygerons*, *Geums*, *Gaillardias*, and *Phloxes* are a few of the numerous showy plants which I admired during a far-too-hurried, but exceedingly pleasant, visit to these progressive nurseries. P. C.

AMERICAN NOTES.

INFLUENCE OF THE STOCK ON SCION.

THE comments of a *Yorkshire Gardener* (see p. 272) upon the influence of the stock upon certain varieties of *Grapes* reminds me of an experience of over 30 years ago, when an apprentice at Lockerly Hall, Romsey, Hampshire. Someone from the United States was a guest of my employer, and told him of the wonderful *Grapes* of America. Rooted cuttings were sent the next spring and a house was prepared for their reception. The vines grew up and out of the ventilators the first summer in a lean-to house, but the fruit left to mature the next year proved of very indifferent quality; the varieties I remember were *Elvira*, *Martha*, *Concord* and *Catawba*. We were all very much disappointed, including Mr. Jas. Budd, the gardener, but he inarched *Muscat* of *Alexandria* on the American stocks, and the vigour of this *Grape* on these stocks was a revelation; I noticed for years that he was invincible at the Southampton shows with these *Muscats*, the well-known vigour of the root system of the stock made the weaker vine free, and no shanking appeared, as was often the case in the heavy clay soil there.

When visiting Lockerly 20 years later, Mr. Budd was surprised to hear that I remembered the circumstance. He showed me the vines, and they may be there yet. When it was necessary to plant *Muscats* here in this country, the previous experience served me well. We used the "Clinton" *Grape*, it being the variety exported to France for the vineyards there by the million to overcome the ravages of *Phylloxera*, owing to its great root-system. The results were so evident, that a novice could visit our vineries and tell which were inarched and which were on their

can roots, for, for purposes of experiment, we left some to grow without being inarched.

Phylloxera is very generally distributed in this country in the soil; no one seems to know it until trying to cultivate European vines under glass; but then their troubles begin. The experience, gathered as it were by accident, has proved of value to many here when it was desired to cultivate the European Grapes.

NOTICES OF BOOKS.

MENDELISM.*

THE first edition of *Mendelism*, published in 1905, met with wide and well-deserved success, and though the present, much-enlarged third edition, is in many respects an improvement on the first, we confess to a preference for

the first edition you could hear them crow over their heterozygousness and its significance to Mendelians; in the third, their gametic constitution scarcely causes them a flutter. They are now merely heterozygotes, and they are nothing more. "Our regret at the merging of a little masterpiece in a larger text book is, no doubt, mere sentimentality, and we know that the older Universities are not exactly forcing-pits for the cultivation of explicit enthusiasm; therefore, we smother our regrets, and turn to consider Mendelism on its merits. When we do so, we have unqualified praise for Professor Punnett's book. No one to whom it has not fallen to undertake the task of expounding the science of genetics can have any idea how difficult it is for the teacher to carry an audience along with him, and to present his subject-matter in such a way that the essentials remain in the memory of the student. Yet the book is so well planned, and the examples so carefully chosen, that these difficulties are reduced to a minimum, and the student who wishes to obtain an outline of genetics cannot find a better guide than Professor Punnett.

We hope that Mendelism will be widely read by horticulturists interested in plant-breeding, and we would draw their attention specially to the excellent chapters headed "Reversion," "Wild Forms and Domestic Varieties," and "Economical." Each is a model of concise and judicial statement, and all contain facts which the practical man should read and ponder over. The only error of importance which we have noticed is in the statement, several times repeated, that ovules and pollen grains are the reproductive cells of plants. This is as wrong as it would be to affirm that the ovary and testis of an animal are reproductive cells. Two misprints should be corrected in the next edition. On the top line of p. 50, the printing of "white" for "while" may puzzle the novice, and on p. 51, the printer should be asked to ascribe five and not four stamens to the flower of *Primula sinensis*.

In the chapter dealing with sex the hypothesis is sustained that, in certain animals at all events, the female is heterozygous for a "female character" (F) which is lacking in the male, the gametic constitution of which is (ff).

The hypothesis offers an explanation of the approximate numerical equality of the sexes.

Thus female Ff x male ff and ff in equal proportions. Whether, however, this hypothesis will apply to sex in plants remains to be determined.

The book is well printed, though the student who is in the habit of making marginal notes would prefer a paper which takes pencil marks more readily. The black-and-white illustrations are numerous and excellent. The five coloured plates are well executed, and of great assistance to the student in enabling him to follow the modes of inheritance which they depict.

HELENIUM "RIVERTON BEAUTY."

THIS beautiful variety of *Helium autumnale* provides an ideal subject for the hardy herbaceous border, being one of the most effective flowering plants in late summer and autumn. From August onwards, for a period of six weeks or more, the plants are covered with flowers. On first expanding, the flower-heads are coloured a pale yellow; later, as they open, they reveal a deep purple centre. The plant grows from 3 feet to 5 feet high.

* *Mendelism*, by R. C. Punnett, Professor of Zoology in the University of Cambridge. Third edition. Cambridge: Macmillan & Co. 1911. Pp. 175, with 7 plates and 100 figures. 5s. 6d.



FIG. 153.—HELENIUM AUTUMNALE "RIVERTON BEAUTY."

It may be absolute heresy, but I desire to say, at this time, that there are no Grapes that have the character that is found in the Concord or Niagara Grapes as grown here and sold at the rate of about a shilling a basket of 10 lbs. It is true they do not keep long, but while they last their season is as truly a time of feast as that of the Peach or Strawberry season. *E. O. Orpet*, "Walden," Lake Forest, Illinois.

the original. The first edition was, it is true, but a slender sketch, but it betrayed the hand of the artist. The present edition is a more finished picture of genetic science, and the lines thereof are drawn with more restraint; but the hand is the hand of the professor. To confirm this impression, we may contrast the accounts given in the earliest and latest editions of those heterozygous "blue birds," the Andalusian fowls. In

The Week's Work.

THE HARDY FRUIT GARDEN.

By W. HUBERT WARREN, Acton Clinton Gardens, Bedfordshire.

NAILING AND REGULATING WALL TREES.—The nailing of fruit trees to walls requires to be done carefully, for, when performed in a careless or indifferent manner, the appearance of the tree is spoiled, and often its cropping is impaired. Fortunately, the old-fashioned and objectionable method of training fruit trees to wooden trellises is now almost a thing of the past, for, under the most favourable conditions, the woodwork soon became a harbour for insect pests and other vermin, while the branches of the trees, being away from the face of the wall, do not get the greatest benefit from the warm bricks during the summer. When a wall is built of stone, and the joints are, in consequence, far apart, or when the wall is faced with cement, suitably-placed wires are undoubtedly the best means of securing the branches of the trees. The wires, however, must be painted, otherwise they will prove injurious to the trees, and especially to the young shoots. Nailing the trees to the wall by means of shreds is an old method, and, in some respects, difficult to improve upon. Every branch of the tree should be unfastened from the wall at the time of the winter pruning, the wall swept clean, and, if necessary, washed with an insecticide. The re-nailing of the trees should take place as soon as possible after they have been pruned and dressed, in order to prevent them from injury by snow and strong winds, which often break the snags and buds. It is still the habit of some to allow their trees to remain unfastened until the spring, but I regard it as a wrong practice, and fail to see any benefit derived from it. In fixing a fan-trained tree to the wall, place the main branches in their proper positions first, then proceed to nail in the younger shoots, beginning with the lowest main branches on either side, and disposing of the young wood as regularly as possible throughout the tree. Suitably-shaped wrought-iron nails are now more generally employed than the old-fashioned, square-headed nails, made of cast-iron, as the former may be straightened if bent, and do not break. Those of the old type often snap off short, rendering the shoots liable to injury by the hammer. But, whether the nails be of wrought or cast metal, they should not possess sharp edges or corners, which frequently damage the young shoots through rubbing against them during the growing season. When it is considered necessary to use the nails a second time, they should be dipped in paraffin oil, or boiled in water, to destroy the larvae and eggs of insects. Medicated shreds are the most suitable to use, these affording little harbour for insects in comparison with those of a woolly texture, neither are they so liable to tear, nor are they so conspicuous. Never use more shreds than are absolutely necessary, always placing them between the buds along the branches, arranging them, if possible, alternately on each side of the branch. It is seldom necessary to use the shreds a second time; indeed, it is a false economy to do so, but if they are used again, they should be boiled in strong soda water for several minutes, but not dipped in oil, or the young shoots may be injured. Without this precaution, their second use may incur endless trouble from insect pests during the ensuing season.

FRUITS UNDER GLASS.

By I. E. BUCKLEY, Gardener to the Hon. Viscount GERRARD, Aldham House, Herefordshire.

THE VINERY.—With the exception of the very late varieties the majority of Grapes keep much better if the bunches are cut and the shoots placed in bottles of water in the Grape or fruit room. Their removal will allow a longer rest for the vines, and permit of the cleansing of the house earlier. The special bottle for this purpose now on the market is to be preferred to those of the ordinary kind. A small piece of charcoal placed in each vessel will greatly assist in keeping the water pure. The necessity for

frequent examination of the bunches with a view to the removal of any berries that show signs of decay cannot be too fully emphasized. Bunches of the variety Madresfield Court do not keep very well, and should be made use of without delay. Houses containing late Grapes will need very carefully ventilating, and especially during damp, foggy weather, whilst as little atmospheric moisture as possible should be created, and the pipes warmed to maintain a buoyant atmosphere. No further waterings at the roots will be needed until after the Grapes are all cut.

CUCUMBERS.—Plants intended for fruiting late in winter have made a good growth, the mild, open weather having suited them. In order to conserve the energies of the plant, the fruits should be cut as soon as they are of a sufficient size. Attend carefully to the regulating of the foliage, avoiding overcrowding of the leaves, as this will favour red spider when much fire-heat has to be employed. Encourage surface rooting by affording slight top-dressing of rich soil, and sprinklings of some suitable artificial manure, just before watering the roots. Sprinkle the foliage with tepid water as often as the weather is favourable, and sprinkle sufficient moisture about the house to counteract the effects of fire-heat.

PINES.—Pineapples require all the light possible during the winter months to promote a healthy, strong growth, therefore the glass should be thoroughly cleaned both inside and out at intervals. The plants are benefited by a circulation of fresh air when circumstances allow, and top air should be admitted when the thermometer rises 10° above the normal night temperature. Too much moisture at this season should be avoided; do not spray the plants overhead unless the day be exceptionally bright. Afford water at the roots only when the soil is approaching dryness; young plants that are to be kept gradually growing through the winter months will benefit by applications of weak guano water. Plants of Queen Pines that are expected to fruit early next year should not be grown in too high a temperature for a few weeks. Suckers on fruiting plants may be taken off after the fruit is cut, and either potted up or heeled in a propagating pit with a view to placing them in pots in the spring.

CHERRIES IN POTS.—Where ripe Cherries are required towards the end of May, a start must be made with the forcing of the plants not later than the end of the present month. Assuming that proper attention was given to pinching the growths during the growing season, little pruning beyond shortening back the fruiting spurs, in some instances, will be required. Have the pots well washed, some of the old surface soil removed, and the branches syringed with an insecticide. They may be accommodated in a Peach house, where forcing is being started. Afford water carefully, and admit air freely at the commencement when the weather permits. Fumigate the plants mildly before the flower-buds commence to show the colour of the petals, to destroy any aphids that may be present. No attempt must be made at this season to hasten Cherries into growth or failure will be inevitable. When the flowers are expanded they should be pollinated some time during the middle of the day.

THE ORCHID HOUSES.

By H. G. ALFANDELL, Orchid Grower to H. G. Sir C. L. HOLLAND, K.C., & Co., Ltd., Windsor, Gloucestershire.

CATTLEYAS AND LÆLIO-CATTLEYAS.—Of late years numerous fine varieties and hybrids have been added to the autumn and early winter-flowering section of these plants, which greatly enhance their value for garden purposes. Cattleyas and Lælio-Cattleyas are, unquestionably, the most showy and desirable Orchids for blooming during the winter season, whilst for exhibition and decorative purposes, either as plants or cut blooms, there is nothing to surpass these gorgeous flowers. Amongst the many kinds that bloom at this season are *C. aurea*, *C. labiata* and *C. Bowringiana*, which represent the pick of the species, and the following hybrids: *C. Mantinii*, *C. Ariel*, *C. Mrs. J. W. Whiteley*, *C. Portia*, *C. Fabia*, *C. Iris*, *C. Hardyana*, *C. Cleopatra*, *C. Ashtonii*, *C. Wendlandii*, *C. Mrs. Pitt*, *C. Adula*, *C. Basil*, *C. Clarkia*, *C. fulvescens*, *C. Miranda*, *C. Rhoda*, *L. C. Ophir*, *L. C. Irene*,

L. C. Cornelia, *L. C. Clive*, *L. C. Berthe Four-nier*, *L. C. luminosa*, *L. C. Cappei*, *L. C. Charlesworthii*, *L. C. Golden Oriole*, *L. C. Bar-borossa*, *L. C. Cooksoniae*, *L. C. illustrious*, *L. C. Ortrude*, *L. C. St. Gothard*, and *L. C. Stat-teriana*, these being some of the best. Many of these are now in their full beauty, and the fine size and colour of the flowers bear remarkable evidence of the great benefit the plants have derived from the unusual amount of sunlight and heat during the past season. The blooms of some of the above-mentioned kinds possess exceptional lasting qualities, but it should be borne in mind that large, heavy flower-spikes are very exhaustive to the plants, hence, they should be cut after being open for a reasonable length of time. When flowers are allowed to remain for a longer time than is good for the plants, the effect is not always apparent immediately, but will almost certainly be seen the following season by the production of weakly growths and inferior flower-spikes. After the flowering stage is past, the plants should be afforded a position where plenty of light and air can reach them, and, from this time onwards, until the growing season comes round again, very little water will be needed to keep the pseudo-bulbs plump and the roots healthy. Most Cattleyas have completed their growth, but the nature of many of them is such that no defined resting season must be allowed. For instance, in the cases of the early-flowering members, such as the species *C. Triane*, *C. Percivaliana*, and many hybrid kinds that commence flowering early in the New Year, although no signs of growth may be visible, and apparently the plants are quite dormant, the flowers are forming in the sheaths, and root moisture must not be too sparingly afforded; in fact, a certain amount of root action is always going on. As referred to in the calendar for July 1, some of the late summer and early autumn-flowering Cattleyas break into growth at the base, and already many of these have developed sturdy secondary growths. Many plants of the late spring and early summer-flowering section, including *C. Mossie*, *C. Mendellii*, *C. Skinneri*, the *Brasso-Cattleyas*, and other hybrids, completed their season's growth earlier than usual this season, and some of these are now making secondary growths. When once growth has started nothing is gained by checking it, therefore the shoots should be encouraged to develop by keeping the plants well up to the light, and paying strict attention to watering the roots. Endeavour another season to have them growing in their normal season. Members of the upright-growing, two-leaved section, such as *C. bicolor*, *C. guttata*, *C. granulosa*, *C. intermedia*, and their hybrids, seldom grow out of their season, provided the plants are rested in a group in a well-ventilated house and watered carefully. Though it is not the usual time to practise potting, yet any plants that require a shift and are growing and rooting freely may be given a larger receptacle. At Westnabirt we never hesitate to repot Cattleyas at any season, if the plants have plenty of young roots just bursting from the rhizomes. But be careful to guard against over-watering.

THE KITCHEN GARDEN.

By JONAS DENNIS, Kitchen Garden Foreman, Royal Gardens, Windsor.

CHICORY.—As Lettuces out-of-doors become scarce, a good substitute will be found in Chicory. If sufficient roots are available, it will be an easy matter to have a daily supply of Chicory through the winter months. The roots should be placed in some dark place, where sufficient heat may be maintained to start them into growth, but do not allow the atmosphere to become excessively moist, or the young shoots will be injured by damping. Avoid a high temperature, as the best crop will be produced under a cool treatment. At Windsor, we grow Chicory in the same manner as Seakale. The roots are placed in a dark pit, over a very mild hotbed, composed of leaves, the bed being covered with a layer, 9 inches deep, of rich soil, into which the roots are planted to within 1 inch of the crowns. One copious watering may be afforded when the roots are placed in position, and this should be sufficient moisture until the crop is ready to cut. The roots should then be thrown away, and fresh plantations made. If fresh roots are placed in heat at regular intervals

during the winter, an unbroken supply will be maintained. The number of roots to be placed in heat at one time will depend on the requirements of the establishment.

BATAVIAN ENDIVE.—Batavian Endive is much more reliable than Lettuce as a winter salad. The plants should be lifted from the garden when the weather is dry, and placed closely together in cold pits. In transplanting, take care to retain as much soil as possible on the roots. After planting, afford a good watering to settle the soil about the roots, and this will be sufficient moisture for some time to come. The lights should be removed from the pit on dry days, as the atmosphere must not be allowed to become damp or stagnant.

BROAD BEANS.—If an early supply of Broad Beans be desired, seeds should be sown as soon as the ground is in a suitable condition for the work. Choose a sheltered place, and soil of a rather sharp nature, for, although Broad Beans delight in a somewhat heavy soil in summer, it would be unwise to sow them in such ground at the present time, as often as the roots appear above the surface of the soil. A mixture of sandy loam and leaf-soil in equal quantities will be suitable as a top-dressing, and the materials should be placed in the house on the day previous to being used, so that they may become warmed through before being spread over the roots. Remove all deformed fruits and decaying foliage from the plants, also any fruits over and above the number required for the needs of the establishment. Care should be taken to regulate the young growths, avoiding overcrowding. Soft growth, which would be welcome in spring, is now undesirable. Late plants, from which fruits are expected in January and onwards, should be kept well thinned. Nothing is more detrimental to this batch of plants than to allow the foliage to become crowded. The shoots should be tied regularly over the trellis, allowing sufficient space between them for the light to reach the interior of the house. A little air may be given on fine, sunny days, but never open the ventilators sufficiently wide to cause the temperature of the house to fall. The night temperature may be 70°, but if cold weather causes it to drop a few degrees, it will do no harm. Damp the walls and floor of the house frequently, and, on bright days, lightly syringe the foliage in the early afternoon to keep insect pests in check.

PLANTS UNDER GLASS.

By J. J. H. GARDNER, Gardener to the Earl of Devon, Exeter, and to the Earl of Arundel, Brighton, Sussex.

THE COLD GREENHOUSE.—In this house early plants of *Erica* and *Epacris* will be coming into flower. If any stock has been purchased this autumn a close attention must be paid to the watering. As showing how important this is, if, for instance, the roots of *Erica hyemalis* (one of the best healths of early spring-flowering) are allowed to suffer from want of water, the flowers will probably open in a crippled condition, and it not infrequently happens that many of them turn a yellow colour. All plants of the class known as New Holland plants need to be watered with great care. None of these plants should be potted during the winter season. A few kinds of plants cultivated in this house, such as *Acacia* and *Chorizemas*, are very liable to attacks of the white scale insect. Directly the pest is detected measures should be taken to exterminate it should be employed. I have found it very troublesome to both these plants, especially specimens grown as climbers in the conservatory. The best plan is to apply a strong insecticide by means of a painter's soft brush, and if the specific is applied once or twice it will soon kill all the scales. Trouble may also arise from mildew, which often attacks *Ericas*, such as *E. Cavendishii*. In this case the plants should be dusted

with flowers of sulphur at an early stage of the mildew. If no fire-heat is applied, aphids will give very little trouble. A little fresh air may be admitted by the top ventilators at night-time whenever the weather is favourable, increasing the amount, correspondingly, during the day-time. Aim at having the growth of the plants as hard as possible to withstand the comparatively low temperatures later in the year.

WINTER BERRY-BEARING PLANTS.—Berried plants are valuable for decorative purposes when flowering plants are too precious to employ for decoration in very cold weather. Amongst hardy shrubs that carry bright fruits at this season are the Aucuba and Skimmia. Specimens in fruit, if cut now, should be covered with bright red berries by the end of December. *Berberis Wilsonii* is another excellent plant for the purpose; indeed, I do not know a more distinct and handsome plant for winter-fruiting; it is quite new to gardens, being only recently introduced from China. The berries, which are suffused with a dark orange tint, are produced very freely in long racemes. Dwarf plants may be obtained, and form very suitable subjects for pot culture. The berries are more abundant on plants that have been lifted, and, if need be, divided annually. Division offers a suitable means of increasing the stock, and by this method handsome little bushes may be obtained. If these are planted out again when their fruiting is over they may be grown for fruiting another season. The new Snowberry, *Symphoricarpos occidentalis*, bears a profusion of its white berries when quite small, and may be employed as a pot plant indoors. As the leaves will have fallen by the time the berries are mature, the plants may be crowded together, but they should be placed against a background of some bright flower, when the contrast will be charming. After the berries have fallen, cut the plants hard back and plant them outside for another season. The varied forms of *Fernettia mucronata* are excellent as pot plants, and their fruits provide diversity of colouring. *Solanum Capsicastrum* is a well-known greenhouse plant and one of the most decorative fruiting subjects. When well established, the plants last a long time in good condition of fruiting. If any berries are still green, a little warmth will assist them to colour, but do not encourage young growths to develop; rather pinch them off. Dwarf plants of the small-fruited Orange, carrying good crops of fruit, may need a little extra warmth to perfect the colouring of the latter, and this should be afforded them at once. The fruits will last a long time in a good condition, but they are exhaustive to the plants and should not be allowed to remain for too long a period. Aim at keeping the plants in a healthy condition by removing the fruits in the early spring, and then encourage the development of new growth and blossom. Dwarf-fruited plants of the decorative type of *Capsicum* are very useful. See that red spider does not injure the foliage. Of stove-fruited plants, *Combretum purpureum* is one of the best and most distinct, its long shoots, when well clothed with berries, being a feature in a cold stove. These shoots should be bent down to make a more compact plant; semi standards make the best plants for the purpose. *Ardisia crenulata* and *A. c. alba* are both well worthy of careful culture, especially the type, which is the more showy of the two. I have raised plants from seeds, but it takes two years at the least to get them into a fruiting condition. Then they will continue to live for some years and in relatively small pots. *Rivinia humilis* is more fitted for the stove than any other house. This plant may be treated as an annual, and it will grow freely and berry most profusely in damp houses. The long racemes of Currant-like fruits are very pretty. It makes an excellent table plant in a 3-inch (60) pot. *Dracena Godseffiana*, though generally grown as a foliage plant, is very pretty when furnished with its Aucuba-like berries. As basket plants, both *Asparagus deflexus* and *A. Sprengeri* are rendered more attractive when furnished with berries. See that all those I have mentioned do not now suffer from want of water.

EUPHORBIAS.—The past season has been most suitable to Euphorbias, as both warmth and sunshine are congenial to their requirements. Guard against plants of *E. pulcherrima* receiving a check from a chill. As the brilliant bracts

are now developing, a little additional warmth will be an advantage and favour their larger development. The pots, being well filled with roots, an occasional dose of weak liquid manure will be an assistance. Guard against an excess of atmospheric moisture. Plants of *E. jacquiniiflora* should be kept well up to the light; in fact, the nearer to the roof-glass the better. *E. splendens* may be safely accommodated in an ordinary greenhouse, although it is often classed with stove-plants, but under these conditions keep the roots on the dry side.

THE FLOWER GARDEN.

By R. F. BISHOP, Gardener to the Earl of Devon, Exeter, and to the Earl of Arundel, Brighton, Sussex.

SHRUBBERIES.—The planting of shrubberies should now be brought to a conclusion for the year. During the past week I have been increasing my stock of flowering Currants and *Prunus Pissardi*. These, like Willows, require pruning to the ground every one or two years, in order to induce the production of long, straight shoots for decorative purposes. Others which are also very useful in this way are *Cornus alba*, *Leycesteria formosa*, *Neillia populifolia*, *Black Currant Victoria*, *Piptanthus nepalensis*, varieties of *Rosa alpina*, *R. rubrifolia*, &c., *Rubus leucodermis*, *Azara microphylla*, *Aucuba japonica*, *Jasminum nudiflorum*, and *Corchorus japonicus*. Like the bed of the immortal Goldsmith, these "contrive a double debt to pay," being decorative as shrubs and furnishing a supply of cut sprays. The cleaning of a shrubbery especially trees, entails much labour: now that the Oaks, the latest to shed their leaves, are defoliated, the work may be commenced, for the shrubbery should be quite cleared by the end of the year. The leaves taken from the ground should, if possible, be stored in heaps near the shrubbery, and when they are well decayed they will form an excellent top-dressing for the shrubs. All dead branches should be removed from large specimens, as dead material attached to a living organism exerts a pernicious influence. This applies especially to Hollies and the common Laurel. Two weeds that are very common in shrubberies are the common Nettle, and the Bishop Weed (*Egopodium Podagraria*). The best method of dealing with these, and all other perennial weeds, is to root them up, as the underground stems of the Nettles are never far below the surface. The Bishop Weed sends its roots deeper into the ground, and the best plan is to dig a trench slightly deeper than the underground growth, and, working the soil from below, examine each spadeful, extracting every scrap of root turned up. I have also found this method successful in the case of *Thalictrum repens*. *Polygonum convolvulus* and *P. persicaria* (here known as Diels Lingels) are almost impossible to eradicate on account of the roots penetrating to an enormous depth.

IRIS SUSIANA.—Clumps of this old favourite Iris have already produced growth several inches in length, and though the plant is apparently hardy, I find it a good plan always to have material ready with which to cover it in case of a hard frost. A little well-rotted manure scattered over the clumps induces extra strength of growth on the approach of spring. Heliobores of many varieties also appreciate a similar top-dressing; these are later than usual in making their growth.

PLANTS WHICH HAVE FRUITED OUTDOORS

AT BITTON.—One good result of the fine summer is seen in the fact that many shrubs and other plants which do not usually bear fruit and ripen seeds have done so this year. I think this is worth recording, and I send a list of plants which have fruited in my garden this year in fully exposed positions. *Umbellularia*, *Catalpa*, *Tulip Tree*, *Fremontia californica*, *Myrtus communis*, *M. tarentina* (white fruit), *Persimmon* (a good crop, but fruit small), *Pomegranate* (a few well formed fruits), *Magnolia Lenei*, *Egle sepia* (a small crop, but good seeds), *Vitis pumilifolia*, *Hibiscus Hamabo* (blue and others), *Pavia humilis*, *Solanum Torreyi*, *White Wistaria*, *Pardalidopsis chinensis*, &c. To these must be added the haws of the Thorns and the hips of the single Roses. My bushes of *Rosa Seraphini* and *R. pomifera* were worth coming many miles to see. *Henry N. Elliscombe, Bitton Vicarage, Bristol*

HIBITORS.—The directors desire to draw the attention of exhibitors at the International Show to the fact that they have decided not to enforce the condition printed at the foot of the entry forms already distributed in the schedules, to the effect that specimens (plants, &c.) must have been cultivated by the exhibitor for at least two months prior to the date of the show. Regulation 20 in the revised schedule, is the only stipulation

of the kind that will be retained, namely, that the "Exhibits must be the property of the exhibitor, or of the employer in whose name they

are shown." The directors also announce that they will provide all necessary plates and vases; the plates will be of cardboard or papier maché.

AUTUMN ORCHID SHOW.—The R.H.S. Council have appointed a sub-committee to consider the arrangements for the Orchid Show to be held on November 5-6, 1912. The sub-committee consists of Mr. J. GURNEY FOWER (chairman), Mr. JAS. O'BRIEN (hon. sec.), Lt.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Mr. GURNEY WILSON, and Mr. JOHN CYPHER. The sub-committee met on Tuesday last, and considered some of the chief points necessary to ensure a good and effective display, and more especially to secure the co-operation of Orchidists in the provinces. Suggestions for the most important classes were made, which the Secretary will circulate and invite suggestions.

R.H.S. GARDENERS' DIARY FOR 1912.

There is always something fascinating about the diaries that make their appearance in the late autumn of the year. This season, however, a diary is before us which has special claims on the interest of horticulturists. It is published by Messrs. LETTS & Co., specially for the Royal Horticultural Society, and is edited by the Secretary, the Rev. W. WILKS M.A. *The R.H.S. Gardeners' Diary* contains in a remarkably small compass much information that gardeners require. "The Hints on Cultivation" which occupy the front portion of the book are of a practical nature, and calculated to give valuable assistance not only to the amateur, but also to the more advanced grower. Immediately after the calendar, which includes the R.H.S. fixtures for 1912, we find a "Daily Wants Dictionary," which consists of an alphabetical list of common subjects, after the style of a small encyclopædia. This is of general utility, and although it occupies only four pages, it covers a very wide range of subjects, as, for instance, the Derby winners for the past five years, rates of fire insurance, the cost of a marriage licence, and the measurements of a tennis court! At the end of the memoranda for each week, directions are given for the work to be done in the garden during the week. It may be mentioned that scarcely enough room is given under each day for memoranda, but naturally portability is one of the chief points of a diary. The prefaces, by the Editor, shows signs of having been written hastily; there are several small errors, and the word "advisably" should surely read "adviseably." However, every gardener will do well to keep a copy of the R.H.S. Diary in his pocket.

ROYAL METEOROLOGICAL SOCIETY.—The Council of the Royal Meteorological Society have awarded the Symons Gold Medal to Professor CLEVELAND ABBE, of the United States Weather Bureau, in recognition of the valuable work which he has done in connection with meteorological science. The medal will be presented at the annual meeting of the Society on January 17, 1912.

PERPETUAL-FLOWERING CARNATION SOCIETY.—The 11th exhibition of this society will be held on Tuesday and Wednesday, December 5 and 6, in the Royal Botanic Society's Gardens, Regent's Park. Particulars may be obtained from the Secretary, Mr. HAYWARD MATHIAS, Stubbington, Fareham, Hampshire, or the Show Superintendent, Mr. E. F. HAWES, Ulysses, Fortune Green, London.

THE GARDENERS' COMPANY. The LORD MAYOR presided over a meeting of the Court of Aldermen of the City Corporation on November 15, when a petition was presented by the Gardeners' Company, applying for an increase to their number of liverymen. The Master, the Wardens and the Clerk attended in support of the application, and it was stated that the increase suggested was from 60 to 150. The last increase was granted 20 years ago, and the Duke



FIG. 156. *PALIURUS AUSTRALIS*, "CHRIST THORN."
Branch with hatch-like fruits.

of Tack and other eligible Freemen were anxious to take up their livery in the Guild. The Court of Aldermen referred the petition to the General Purposes Committee for consideration.

SOUTHAMPTON CHRYSANTHEMUM SHOW.—A 2 H medal was awarded at this Show to the Hon. Mrs. YORKE (gr. Mr. Turner) for a group of Begonias, and a similar medal to Mr. E. WILKINSON for a group of miscellaneous plants and floral designs.

RESEARCH SCHOLARSHIPS IN AGRICULTURAL SCIENCE.—The Board of Agriculture and Fisheries have awarded Research Scholarships in Agricultural Science to the following gentlemen:—P. G. BAILEY, B.A. (Camb.); J. CLAYTON, B.A. (Camb.); J. T. EDWARDS, M.R.C.V.S.; E. T. HALLAN, B.A. (Camb.); J. HAMMOND, B.A. (Camb.); J. A. HANLEY, A.R.C.S.; G. E. JOHNSON, M.Sc. (Birm.); C. G. P. LAIDLAW, B.A. (Camb.); A. E. LECHMERE, M.Sc. (Bristol); J. W. LESLEY, B.A. (Camb.); A. NEVILLE, B.Sc. (London); F.I.C., F.C.S.; G. T. SPINKS, B.A. (Camb.). These scholarships have been established in connection with the scheme for the promotion of scientific research in agriculture, for the purposes of which the Treasury have sanctioned a grant to the Board from the Development Fund. The scholarships, which are of the annual value of £150, and are tenable for three years, have been established in order to train promising students, under suitable supervision, with a view to their contributing to the development of agriculture, either by carrying out independent research or by acting in an advisory capacity to agriculturists.

PRIMULA KEWENSIS.—The history of the acquisition of fertility on the part of this hybrid is extraordinarily interesting. Raised at Kew in 1899 from a chance seedling found among a batch of *P. floribunda*, *P. kewensis*, which is a hybrid between *P. floribunda* and *P. verticillata*, was at first, and remained for some years, absolutely sterile. The sterile plants occurred in one form only, named thrum-eyed (short styled). After some years, however, a single pin-eyed plant was discovered in Messrs. VEITCH'S nurseries. This plant was, as we learn from Messrs. VEITCH, remarkable in several ways. In the first place, its main inflorescence bore pin-eyed (long styled) flowers. In the second place, though the style of these flowers was long the stamens were in the position on which they occupy in thrum-eyed flowers. In other words, these flowers, though pin-eyed, as judged by their styles, were thrum-eyed, so far as their stamens were concerned. In the third place, other inflorescences which developed on this long-styled plant bore ordinary thrum-eyed flowers. Self pollination of the pin-eyed flowers resulted in the production of good seed, from which has been raised all the fertile plants of *P. kewensis* now in cultivation.

MALE AND FEMALE SEEDS IN DIOECIOUS PLANTS.—Professor CIESIELSKI, of Lwow, has just published a paper stating that he has discovered the secret of sex, and that he can produce at will "male" or "female" seeds. This question must, of course, be investigated in plants where the sexes are completely separate, and, for ease in investigation, plants which mature in a single year should be used. Professor CIESIELSKI selected *Cannabis sativa*, because of the extreme rarity with which stamens appear in the female flowers, though, in other dioecious plants this is not uncommon. He began his experiments in Breslau, in 1871, under the auspices of the late Professor GOEPPERT, and during the first six years he proved that density of planting, the phase of the moon when the seeds were sown, the amount of sunshine, exposure to drought, variation in manuring, and

the part of the inflorescence where the seeds were matured, were all alike of no importance. In none of these cases did the proportion of male and female plants vary appreciably from this average given by unselected seeds; and in no case did either sex exceed 60 per cent. of the whole. In the year 1877, having planted out his female plants a full hundred yards from the male ones, with buildings between, he pollinated them artificially. He carefully cut off the male inflorescences and simply shook the pollen out over the female ones. The inflorescences were cut in the morning, and one bed of female plants was pollinated at sunrise, while another, at a distance, was pollinated at sunset. The seeds of the former gave no less than 85 per cent. of male plants: those of the latter no less than 92 per cent. of female plants. This striking result induced Professor CIESIELSKI to carry out a more accurate experiment, and in the next year he put three female plants in one case and three in another, and fertilised them by transference of pollen with a brush. For fertilising the first group he used pollen from anthers which were just beginning to open, and transferred it at once to the stigmas: for the other group he used pollen which had been collected in the morning and kept in a paper envelope till evening. The first group produced 120 seeds, of which 112 grew, and 106 were males: the second produced 95 seeds, of which 89 grew, every one of which was a female plant. This experiment he repeated on several occasions, and, invariably, with a similar result, leading him to formulate the law that sex depends on the condition of the impregnating pollen, fresh pollen producing males, and pollen which is not fresh producing females. Further experiments were made to see if there were any physical characters by which the male seeds could be distinguished from the female ones before sowing, but no distinctive feature could be discovered. Since completing his experiments on plants, Professor CIESIELSKI has made a series of experiments—much fewer in number and less striking—on animals, which suggest that a similar law holds good in the animal kingdom, though, naturally, the conditions there are not so fully under the experimenter's control. The cautious will demand further evidence before accepting this invitingly simple theory.

NITROGEN GATHERING PLANTS.—A brief and well-illustrated summary of our knowledge of the plants which are capable of fixing nitrogen is supplied by Mr. KARL F. KELLERMAN, in the Year-book of the Department of Agriculture (U.S.A.) for 1910. So far as is at present known, the power of bringing free nitrogen into combination is limited to certain bacteria, and possibly some few fungi and algae. Of nitrogen-fixing bacteria some occur free in the soil and some live in association with the roots of the higher plants. The chief of the former free-living class are species of *Clostridium* and of *Azotobacter*: to the latter class belong the bacteria which occur in the root nodules of leguminous and other plants. The root-nodules are produced as the result of the presence of the nodule bacteria, and are, in many cases, abnormally developed lateral roots. The shape and size of root-nodules vary very considerably, and the shapes which they assume range from small spherical swellings in Pea, Bean, Vetch and Gorse, through coral-like, much-branched structures in the Alder and various Cycads, to masses as large as a cricket ball in the Velvet Bean (*Stizolobium durianum*). As just indicated, the nodules and the nitrogen-fixing bacteria which produce them are not confined to leguminous plants. Up to the present they have been found on the following non-

leguminous plants:—Alder, *Ceanothus americanus* (New Jersey Tree), *Ceanothus velutinus*, *Lepargyrea canadensis*, *Elaeagnus argentea*, *Comptonia peregrina* and, curiously enough, various Cycads, including *Cycas circinalis*, *C. Seemannii* and *Encephalartos horridus*.

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HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

MECONOPSIS INTEGRIFOLIA (see p. 358).—The only difficulty I have found in the cultivation of this plant is in getting the seeds to germinate. Both home-saved and purchased seeds have failed alike in this respect, although the seeds appeared to be perfect and were treated exactly as in the case of *M. racemosa*, which usually come up as thickly as Mustard and Cress. Seeds of *M. racemosa* are sown soon after ripening, and the seedlings kept in a cool, moist pit under glass until they are fit for planting out. It is a pity *M. integrifolia* does not succeed in a like manner, as it is such a glorious plant when it does well. The first two plants we had grew upwards of 3 feet in height and flowered well; the only care they received after planting out was protection of their centres from wet during the winter. W. H. PETERS, *Belvoir Castle Gardens, Grooming*.

AN OLD DUTCH FLOWER "MASTER"; AND ITALIAN PERGOLAS.—At the present time there can scarcely be fewer than 20 shows of pictures—representing almost every school of painters, ancient and modern—in London alone. At the Grafton Galleries there is a collection of Old Masters, lent by private owners, the receipts are to go to the "National Arts Collection Fund." Amongst other treasures there is one canvas of special interest by reason of its subject. It is a "still-life" group, representing a collection of fruit and flowers, arranged on a table of yellow stone. The picture is large—at least 6 feet long—and presents a magnificent feast of colour. Roses, Grapes, Pears and Peaches delight the eye with their luscious reds, greens and yellows; they are charmingly grouped in a basket on a blue velvet cloth. Besides them, a blue and white bowl displays its contents—a scarlet lobster, surrounded by various appropriate objects; a cut Lemon, bread, a Pomegranate. The claim of the painting to the quality of "still life" is jeopardised by the presence of a disconsolate-looking parrot—chained to a perch just above, and out of reach of, the dainties on the table below, and a monkey, of evidently mischievous intent, who, seated comfortably between a bundle of Asparagus and a Cauliflower, is holding up a bunch of Grapes, intended to form part of the impending banquet. The painting is by Pieter de Ring, and is dated 1660. So brilliant a piece of colour, in full preservation, is a striking testimony to the craftsmanship and chemical skill of the oil painters of the early Dutch school, the members of which ground and mixed (or "made") their colours, as well as using them. At the Modern Gallery, E. Philip Cornish is holding an exhibition of his work, and garden lovers will do well to visit this, if only to see a charming sketch entitled "The Vine Pergola." This picture gives a very fair idea of the colouring of Southern Italy; the strong sunlight, so characteristic of the country, is well represented. The peculiar methods of training vines in this part of Europe are well worth observation; these are planted on each side of a garden walk, and trained over a framework formed of light Bamboo poles placed at right angles, and the interlacing leaves and tendrils overhead form a delightful shelter from the noontide sun. The subject is very successfully handled by Mr. Cornish; the deep purples of the cast shadows, chequered by the sunbeams filtering through the interstices between the dancing leaves, give an air of charming reality to the scene, and a few white goats, well drawn, and thoroughly in keeping with the character of the locality, complete this clever sketch. Mary L. Broadell.

GIVE THE JOURNEYMAN A CHANCE!—I read with interest *Royal Journeyman's* note re the pruning of vines. I would remind him that the pruning of vines is a very simple matter compared with the pruning of hardy fruits, including Peaches. Does *Royal Journeyman* understand this work, or does he think it degrading to prune a Gooseberry or Currant? If he observes closely, he will see that the pruning of vines is a comparatively easy matter. J. S. H.

—No doubt, at first sight, a *Royal Journeyman* would appear to have a grievance, in that, as he says, "Journemen are seldom allowed to assist with the pruning of vines, &c." It may be admitted that every young man who aspires to the position of head gardener must know how to prune; but I do not think very much knowledge would be gained by "assisting," as I understand the word. For instance, a man might be one of two pruning a Peach tree, yet he might work in this way for a long time and never learn to do the work alone. Keen observation of what is being, or has been, done, supplemented by a few explanatory remarks and a close study of good works on pruning by thoroughly practical men, are necessary. After all, the main point is to grasp the object of pruning, the end which is to be gained. I have seen many a tree which has been cut, but in no sense pruned; and many a man will learn more by keen observation than another by any amount of assisting. On the other hand, it is to be admitted that the system at present in vogue in private gardens does not allow much time for the foreman or head gardener to supervise the journeyman's pruning; the time thus employed would be twice as long as that required by one who understood the work. This is a point which should be considered. In many cases time is found by the foreman or head gardener during the pruning operation to explain the method to an enquiring journeyman; and if attention has been paid, the journeyman should be able afterwards to make use of the knowledge thus gained. In large gardens, where there is an abundance of fruit trees, I have no doubt that if a request were made by an intelligent journeyman to be allowed to prune a tree or a vine rod, permission would be granted readily. I need not say that the head gardener would desire to satisfy himself that such a request was really made with the object of gaining knowledge and experience; but the next season's crop depends so much on judicious and careful pruning, that the reputation of the gardener might suffer considerably if a really serious error were made. *Head Gardener.*

JAPANESE DWARF TREES IN BATTERSEA PARK.—Many frequenters of London's West-end parks and gardens do not know the beauties of Battersea Park, which, being "over the water," is somewhat neglected, particularly by strangers. One of the newest features on the Albert Bridge (west) side is a Japanese garden raised on an ornamental stand, some 3 feet from the ground. In the space of about 12 by 16 feet there is a diminutive and typical Japanese landscape with wooded slopes, crowned by temples and palaces, and banks shelving down to a winding water-track crossed by bridges. Few of the trees are more than a foot in height, and many of them are only 3 to 6 inches. There is a "flowering cherry" 42 years old, under 1 foot, and a Japanese Maple, planted in 1858, about 7 inches high. The White Cedar (3 to 6 inches high) is the most effective specimen, the perfection of its form, and a group of these dwarf Cedar trees, arranged on a sloping rock, gives all the illusion of a pictured forest scene. Near by is a table of *Dates*. Cedar trees, planted in 1825, have attained the height of 1 foot 7 inches! Other species are Japanese Cedar, *Buxus sempervirens* and *Pinus pentaphylla*. Round the raised garden are arranged other somewhat larger specimens of dwarfed trees and shrubs. The general impression produced by these miniature gardens is depressing, probably because the majority of the trees are evergreen, and so dark and gloomy in colour. A charming exception is the Japanese Maple, which, even in the fairy scene with its fan-shaped leaves of rosy-red. The main defect in the dwarfing of trees is that the size of the leaves cannot be reduced in proportion to the rest of the growth, and so, in many cases, the effect resulting is merely that of a detached bough planted, instead of a perfect tree. *Mary L. Breakell.*

MARKET GROWING AND LOW PRICES.—The article on this subject on p. 319 deals principally with the depreciation in the price of Tomatos and the hardships thereby inflicted on the small grower who still takes his produce to market. With regard to decorative plants and flowers for Covent Garden Market, I was from 35 to 40 years ago engaged in that branch of horticulture, and I often think what a golden age it was for the producer compared with the present time. The system of retarding different subjects has quite revolutionised the culture of many popular flowers and the lower prices contrasted with the period I name are extraordinary. It must be borne in mind that the cost of production is now quite equal to what it was then, hence the market-grower of the 70's may reasonably refer to the good old times. Among the subjects which I handled in those far-off days, the Lily of the Valley stands out prominently. The only way to get these in flower early was to obtain well-ripened Berlin crowns and force them hard, to have them in bloom by Christmas. The price that good flower spikes realised at that season, and often for two or three weeks afterwards, was 8s. per dozen wholesale, a price to make a present-day grower's mouth water. From 12s. to 15s. a dozen for Maidenhair Ferns in 48-sized pots, and 30s. when grown in 6-inch pots, was a common price in those days. Palms, too, used to realise high prices, the principal sorts available being *Lythia chinensis* (*Latania borbonica*) and *Hyophorbe* (*Areca*) *lutens*, for the Kentias and *Cocos Weddelliana* were at that time rare. Of present-day popular subjects then unknown to the market-grower may be mentioned *Marguerites*, double Ivy-leaved *Pelargoniums* and *Rambler* *Roses*, while the different species of *Lilium* were but little grown. Zonal *Pelargoniums* were not much employed for winter flowering, but large quantities of a good form of *Tropaeolum Lobbianum* used to be cultivated. W.

JUDGING AT THE FRUIT SHOW.—It is evident that my letter on p. 310 touched a rather tender spot, as *A Judge* appears to resent the question being brought to the notice of the public. What I referred to was a general complaint amongst the exhibitors at this particular show. *A Judge* does not refute my point, that it is not the correct thing for judges to intermingle with the exhibitors during the time the exhibits are being staged. If *A Judge* reads my note again he will find that I did not suggest that any one of the judges at the R.H.S. Fruit Show acted unfairly. What I contend is that it is unfair for judges to be present during the time of staging the exhibits, and all thinking persons will hold the same view. With regard to the point raised by him of not knowing before the exhibitors had left the hall what classes he was to adjudicate upon, what would it matter, if he had been privileged to a general inspection of the whole show beforehand, as it is not often one sees a thing one minute and forgets it the next? I notice that *A Judge* did not clear up any of the points raised by *A Fairplay*.

POLLINATION AND SETTING OF FRUIT.—Some months ago I read a leading article in your paper on the subject of pollination and setting of fruit, and since that time I have discussed the matter with many of my gardener acquaintances. All agree that the subject has a distinct bearing on the problem of sterility in certain varieties of fruits. But I should like to remark that I once had charge for many years of a garden where I found it quite impossible to secure a good crop, either of Greengage Plum or of the Apple Cox's Orange Pippin. The usual cultural conditions were all present, and root-lifting and liming of the land were resorted to several times. Referring to the remarks of Mr. John Smith (p. 310), I may mention that within 20 yards of the trees of Cox's Orange Pippin there stood a large tree of Siberian Crab—usually full of fruits, and other varieties of Apple on the same plot generally gave good crops. I have seen Cox's Orange Pippin at Guntton Park, in Norfolk, fruiting well on cordons by the side of the paths, a considerable distance from any other Apple trees, and with no Crab trees at all with reach. It is evident, therefore, that soil and atmospheric conditions have very great influence. *Yorkshire Gardener.*

SOCIETIES.

ROYAL HORTICULTURAL.

NOVEMBER 21. We doubt if a finer exhibition of fruits and flowers has been seen in London in November than the show held on Tuesday last in connection with the usual fortnightly meeting of this Society. A large number of visitors was present, and at times the Hall was crowded. Chrysanthemums were the most conspicuous subjects, and imposing displays of these flowers were staged by nurserymen. Mr. H. J. JONES put up the largest group, making a magnificent display, principally with large exhibit blooms arranged with taste. Messrs. W. VEITCH & CO., J. FEED & SON, and JAMES VEITCH & SONS also contributed splendid groups in this section, whilst Messrs. STUTTON & SONS had a group of seedling Chrysanthemums in an infinite variety of colours. Besides Chrysanthemums there were bright exhibits of Begonias, Carnations, Gesneras and zonal-leaved *Pelargoniums*, whilst a magnificent group of Dahlias, shown by Messrs. H. B. MAY & SONS, provided further variety. The FLORAL COMMITTEE recommended no fewer than 12 Awards of Merit.

The groups of Orchids were remarkably fine, most of the usual exhibitors contributing choice groups or individual specimens. The ORCHID COMMITTEE recommended five First-class Certificates and four Awards of Merit.

The FRUIT AND VEGETABLE COMMITTEE had a larger number of exhibits to inspect than usual, and this Committee recommended an Award of Merit to a seedling Apple. There was a good attendance at the 3 o'clock meeting in the lecture room, when Mr. Edward White gave an address on "The Royal International Horticultural Exhibition, 1912" (see p. 370).

Floral Committee.

Present: Messrs. W. Marshall and Henry B. May (Chairmen), and Messrs. John Green, G. Reuthe, A. Kingsmill, E. A. Bowles, W. J. Egan, C. B. Fielder, J. T. Bennett-Poe, J. Jennings, W. Cuthbertson, E. C. Reginald Nevill, Chas. Dixon, John Dickson, F. Page Roberts (Rev.), Chas. E. Shea, Chas. E. Pearson, W. P. Thomson, E. H. Jenkins, W. J. James, George Paul, R. Hooper Pearson, R. C. Notcutt, J. W. Barr, H. B. Cranfield, Walter T. Ware, H. J. Jones, and Herbert J. Cuthbert.

LORD HILLINGDON, Hillingdon House, Uxbridge (gr. Mr. A. R. Allan), showed numerous well-flowered plants of winter-flowering Begonias, including the varieties Mrs. Heal, Ensign, and Julius, and others of the Gloire de Lorraine type. The inclusion of suitable foliage plants enhanced the effect. (Silver-gilt Banksian Medal.)

MESSRS. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, again contributed a magnificent display of winter-flowering Begonias, surpassing anything of the kind in the exhibition. The plants were superbly grown and literally smothered in flowers. This firm showed two new varieties, one of which received an Award. The other was of a shade of rose and named Rose Queen. Amongst the older sorts Mrs. Heal, Success, Julius, and Ensign were all good, and in some cases interspersed amongst white and coloured Bouvardias, making a delightful association. At the back were fruiting plants of *Callicarpa purpurea*, and at one end a batch of the blue-flowered *Exacum macranthum*. As a separate group, Messrs. VEITCH also showed a large exhibit of pot plants of Chrysanthemums. These also were exceptionally good, such varieties as Primrose Girl (new), Beauty (pink), Countess of Egmont, Elusive, Mensa, Exclusive, E. Nottell, and Strawberry being shown in well-flowered dwarf specimens. (Silver Flora Medal.)

MR. L. R. RUSSELL, Richmond, filled a large table with bright batches of Gesnera Orange King, the fine trusses of bloom showing well against the ruby-marked, velvety leaves, and Begonia Gloire de Lorraine. There were several dozen pot plants of the Begonias all freely blooming and splendidly trained. The exhibit was completed by a batch of small plants of *Acubia* vera bearing numbers of the scarlet berries. (Bronze Flora Medal.)

MESSRS. W. CURTISH & SONS, Highgate, showed a large exhibit of winter-flowering Begonias, prominence being given to the variety Ensign, with double flowers of a deep rose colour. There was also a collection of greenhouse flowering and

foliage plants. Orange trees in bearing, *Skimmia japonica* berry, and a batch of Carnations. A seedling Carnation of promise named Mrs. Waldorf Astor has a yellow ground with bright-red markings. The variety Henderson's Purple is of a pure magenta shade, the nearest approach to a blue Carnation.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, exhibited a collection of Carnations, making a very pretty group with epergnes and vases of these flowers. A large stand of the fine rosy-salmon variety Lady Alington was in the centre; other good varieties were Baroness de Erienen, a new sort of salmony-pink colour; Gloriosa, clear pink, and White Wonder, a new variety of this season's introduction. (Silver Bankian Medal.)

Mr. H. BURNETT, Guernsey, showed remarkably fine blooms of Carnations of the perpetual-blooming type. Mandarin, a yellow-ground flower striped with rose-pink is a novelty; the blooms are large and of good form. Amongst the older sorts, Britannia and Scarlet Glow were particularly good. (Silver Bankian Medal.)

Messrs. ALLWOOD BROS., Wivelsfield Nurseries, Haywards Heath, contributed Carnations of the perpetual-blooming type, amongst them being the new White Wonder, which recently received an Award of Merit. A white-ground Fancy named Wivelsfield Wonder, May Day and Mrs. R. F. Felton were conspicuous amongst others.

Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett), showed posies of Streptocarpus from the fine strain of these flowers in his collection. The exhibit demonstrated the great advance made with this pretty greenhouse flower in recent years. This exhibitor also filled a table with varieties of single Chrysanthemums, having a representative collection of the best sorts in cultivation.

Messrs. H. CANNELL & SONS, Swanley, showed about 60 bunches of Zonal-leaved Pelargoniums, the finest in their respective colours being Dublin (cerise), New York (scarlet), Madresfield (purple), Sir Thomas Hanbury (crimson), Lady Folkestone (pink), and Snowstorm (white). This firm also showed single Chrysanthemums arranged as a bank of colour, the tones ranging from blush to deepest crimson. A selection of the choicer sorts includes Cannell's King, Cannell's Crimson, Mensa, Lady Furness (a distinct shade rosy-buff), Mr. James Rowley (clear yellow) and Sylvia Slade (plum purple). Other novelties were seedlings of the White Honeysuckle, having rose and yellow florets; Reine du Japon, a new variety of the spidery type, and very quaint in appearance. (Bronze Flora Medal.)

Mr. REUTHE, Keston, Kent, again showed seedling Nerines and a few choice Alpines in pots.

The Misses HOPKINS, Shepperton-on-Thames, exhibited a small collection of Alpines and hardy flowers, also a pink Carnation named Lady Meyer.

Mr. VINCENT SLADE, Staplegrave Nurseries, Taunton, showed numerous vases of Zonal-leaved Pelargoniums, having a selection of the most popular varieties.

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, showed 80 species and varieties of Davallia, some of the plants being 6 feet high. The largest specimens were *D. filiensis*, *D. f. elegans*, and *D. solida superba*. Other remarkably fine plants were *D. plumosus*, *D. magnifica*, *D. heterophylla*, *D. retusa*, *D. parvula*, *D. brasiliensis*, *D. Mooreana*, *D. rufa*, *D. intermedia*, *D. platyphylla*, and *D. Veitchii*. (Silver-gilt Flora Medal.)

CHRYSANTHEMUMS.

Mr. H. J. JONES's fine display of Chrysanthemums extended the entire length of the Hall at the end opposite to the clock. Big Japanese blooms, in tall stands, decorated with autumn foliage and brightly-coloured *Codæums*, arose from a ground of vases of single and decorative varieties, interspersed with Ferns, Palms, Asparagus plumosus, and other greenery. Nearer the front were handsome vases filled with big posies of Chrysanthemums, with here and there a charmingly-arranged basket of some choice decorative variety, the whole being edged with a green band of small Ferns. The exhibit was in every respect an excellent one, and comprised a large number of novelties, as well as the choicer sorts of former seasons. Amongst those of recent introduction may be enumerated

Mrs. W. E. Roope (yellow), Bob Pulling (yellow), G. J. Bier (white), Maguelonne (a creamy-white, incurved flower), J. Surrey (crimson), and Mme. Mague (an incurved flower of the Japanese section). Others that were specially good are—W. H. Iggluden, Lady Frances Ryder (white), Edith Jamieson, Hon. Mrs. Lopes, and E. G. Mocatta. (Silver-gilt Flora Medal.)

Messrs. W. WELLS & Co., Merstham, showed a large bank of Chrysanthemums as a floor group, giving prominence to their fine novelty, Mrs. Gilbert Drabble, a white, Japanese Chrysanthemum, of the best exhibition type. Some of the blooms measured 31 inches in circumference. They were disposed as a tall centre-piece, likened by some to a cascade of white flowers. A basket of the pink single Mrs. W. Higgs was another good feature. We may enumerate the following as a selection of the many other varieties:—Margaret Lloyd (a single, of rosy, terra-cotta shade), Miss A. Brooker (a new decorative variety, of rich crimson colour, showing a paler reverse), Josephine (a pretty yellow single), Mensa (white), Golden King, Caledonia (pink), Merstham Gem (crimson), and Crimson Jewel, these being all of the single type. (Silver-gilt Flora Medal.)

Messrs. JOHN PEED & SON, West Norwood, London, exhibited a floor group of Chrysanthemum, as at the last meeting. On this occasion, prominence was given to a new yellow decorative variety named Mr. Rider Bird. The pretty, white single Felicity, Merstham Jewel (ruby-bronze), Doreen (yellow), and Delphinus (very faint purplish-rose) were other varieties of special interest. (Silver Flora Medal.)

Messrs. GEO. WILLIAMS & SONS, Manor House Nurseries, Cardiff, showed a bright group of Chrysanthemums, including several seedlings raised from the well-known Lady Talbot variety.

Mr. W. J. GODFREY, Exmouth, Devonshire, showed novelties in Chrysanthemums, including Sir Frederick (a fine crimson-coloured single), Godfrey's Crimson (a decorative variety), and Reginald Godfrey (a single, of clear yellow colour).

Mr. JAMES BOX, Lindfield, Sussex, displayed a tall group of Chrysanthemums against the wall immediately opposite the entrance. The exhibit was well arranged, a tall epergne of the beautiful white single Mensa forming a pleasing centre-piece. (Silver Bankian Medal.)

Messrs. WHITELEGG & PAGE, Chislehurst, Kent, showed Chrysanthemums of the decorative type. Some of the singles were remarkably pretty, such as Mrs. William Buckingham (rose pink), Mensa (white), and Cannell's Crimson.

J. CLAYTON, Esq., Oak Bank, Newhaw Road, Addlestone, showed a dozen vases of single Chrysanthemums of well-known sorts.

Messrs. SUTTON & SONS, Reading, exhibited a corner group of Chrysanthemum seedlings, raised from seeds sown in February of this year. The growing of the Chrysanthemum as an annual is a comparatively new departure. The flowers presented a wide range of colours.

Mr. PHILIP LADDS, Nurseryman, Swanley, displayed a collection of Carnations of the type cultivated by market-growers. This firm always shows well, and on this occasion their finest flowers were Dr. Stores, a pink variety with narrow florets; Mensa, Kathleen May, one of the richest of the crimson varieties; Cannell's Crimson, also a fine rich colour; Edith Pagram, and Constance (white). (Silver Bankian Medal.)

Major G. F. WHITMORE, The Glebe Wood, Methwold, Norfolk, exhibited Tobacco as dried leaves and manufactured ready for use to demonstrate the possibility of cultivating this crop profitably in this country.

AWARDS OF MERIT.

Begonia Fascinator.—Messrs. JAMES VEITCH & SONS showed another first-class novelty in winter-flowering Begonias obtained from crossing *Begonia socotrana* with the tuberous-rooted varieties. The novelty known as *Fascinator* was shown as a perfect specimen, covered with the most gorgeous flowers of a salmony-yellow tint over red.

Cuspalpinia pulcherrima.—This is a very old inhabitant of the plant stove, having been introduced from the West Indies towards the close of the 17th century. It is a prickly shrub, 10 or

12 feet high, with pinnate leaves and rich orange-coloured flowers, produced on long pedicels. It belongs to the Natural Order Leguminosae, and was formerly known in gardens as *Poincæana pulcherrima*. An allied species named *Regia* is known as the Royal Peacock flower. Shown by G. EVANS, Esq., Baldock.

Chrysanthemum "Mrs. Walter Hemus" (single).—A fine crimson variety having a raised yellow disc. The blooms last fresh for a long time, making the variety especially valuable for market purposes.

"*Thomas Page*".—This is a Japanese variety of the type cultivated for market; the bright pink florets are remarkably pretty, the tint being pure. The plant is a very vigorous grower, and profuse in flowering. Both these were shown by Mr. PAGE, Tangley Nursery, Hampton.

"*Godfrey's Perfection*". (Anemone).—The ray florets are white, and the Anemone centre ivory colour. Some of the sprays were shown naturally grown, but others were disbudded. The flower is very suitable for decorative purposes, and has a remarkable lasting quality. Shown by Mr. GODFREY, Exmouth.

"*Miss Margaret Gray*" (single).—The florets are of a rich apricot-bronze colour with a faint rose flush, producing a beautiful sheen.

"*Miss Phyllis Bryant*" (single).—A large flower of pale sulphur yellow colour, the several rows of florets drooping pleasingly at the tips. The variety is one of the best of its type. Both these were shown by Mr. PHILIP LADDS, Swanley.

"*Lorbury Yellow*".—This is a decorative variety with very smooth, reflexed flowers of moderate size even when thinned; the colour is a pleasing yellow. Shown by Mr. GEORGE KENT.

"*Margery Lloyd*".—A very large, single flower of light chestnut colour, with a lighter tint round the disc.

"*Merstham Gem*". An orange-coloured, single flower with yellowish ring around the disc.

"*Josephine*".—A very large, neatly-formed flower of pure yellow. These three varieties were shown by Messrs. WELLS, LTD.

"*Primrose Girl*".—This variety flowers best as dwarf specimens not more than 15 inches in height. The single flowers are of a pleasing shade of yellow, and the variety may be recommended as extremely valuable for decorative purposes. Shown by Messrs. J. VEITCH & SONS, LTD.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); Sir Jeremiah Colman, Bart., and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, R. G. Thwaites, A. J. Hanbury, W. Thompson, F. M. Ogilvie, A. A. McBeau, T. Armstrong, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, H. G. Alexander, A. Dye, W. H. White, Gurney Wilson, J. Wilson Potter, W. Bolton, W. Cobb, J. S. Moss, C. J. Lucas, and de B. Crawshaw.

Orchids were a great feature in the show, and a large number of novelties were submitted to the Committee.

The Duke of MARLBOROUGH (gr. Mr. Hunter) was awarded the Society's Gold Medal for a grand group of artistically-arranged Orchids, principally *Vanda cœrulea*, this species being grouped in three elevated masses with a backing of *Cocos plumosa*. The plants were finely grown and well flowered, the largest specimen having six spikes. The front was filled in with good specimens of *Cypripedium insignis* Sandere, the central plant having 40 flowers; other varieties of *C. insignis*; *C. Lord Blandford*, a pretty flower like a finely-spotted *C. nitens*; *C. Baron Schröder*, and other hybrids; and the richly-coloured *Cattleya labiata* "Blenheim" variety.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day) was awarded a Silver Flora Medal for an effective group of forms of *Cattleya labiata*, including the handsome variety *Schofieldiana*, white with pink lip; *C. Iris*, and other hybrid *Cattleyas*; *Lælio-Cattleya Felicia* Goodson's variety of charming colour; *L.-C. Decia*, and other *Lælio-Cattleyas*, *Odontoglossums*, and *Odontiodas*. (*Cypripedium insignis*

Sanderæ was displayed along the front, with C. callosum Sanderæ, C. Maudie, and others.

MESSRS. CHARLESWORTH & CO., Haywards Heath, were awarded a Silver Flora Medal for a select group in which were many interesting hybrids. A batch of the bright orange-scarlet *Epidendrum vitellinum autumnale*, another of forms of *Cattleya labiata*, including the white variety *Schofieldiana*, some hybrid *Cattleyas* of which a special form of *C. Venus* and some brightly-coloured *C. Fabia* were very attractive.

MESSRS. SANDER & SONS, St. Albans, received a Silver Flora Medal for a very interesting group in which were a batch of home-raised Cattleya Hardyana, varying in colour; brightly-coloured *C. Fabia*; a large number of *Lælia* perianth crosses, including L.-C. Lady Rothschild, L.-C. Statteriana, and L.-C. Decia. A good selection of *Cypripediums*, *Tainia barbata*, *Bulbophyllum cylindraceum*, *Coleogyne Swaniæna*, *Bulbophyllum*, *Careyanum*, B. (lone) *paucum*, and others of botanical interest.

MESSRS. J. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal for a fine group, principally of good *Cypripediums*, among which handsome forms of *C. insignis*, *C. Leeanum*, *C. Titius*, *C. Læano-Swinburnei*, *C. Germaine*, *Opoix*, *C. Thalia*, and *C. Felicity* were conspicuous. Other showy *Orchids* were arranged with them, the whole forming an effective display.

A Silver Banksian Medal was awarded to MESSRS. HASSALL & CO., Southgate, for a group of varieties of *Cattleya* Clarkei of special interest, *C. labiata*, *C. Fabia*, *Lælia-Cattleya* *Lambeauiana*, a batch of *Cypripedium* *insigne* *Harefield Hall*, *C. i. Sanderæ* and other varieties, and a good specimen of the remarkable *Angraecum infundibulare* with one very large white-lipped flower.

MESSRS. J. and A. A. McBEAN, Cooksbridge, staged a very pretty group for which a Silver Banksian Medal was awarded. Prominent plants were a fine blue *Vanda cœrulea* set up with brightly-coloured *Cattleya Fabia Vigeriana*; a few good forms of *C. labiata*, including a very clear white form with no colour on the lip; *C. Holmstediana*, very pretty and novel; good forms of *C. Leeanum*, including *Clinkaberry-anum* and *giganteum*; some specially good *Odontoglossum crispum*, O. *Harryanum*, and the new white *Brasso-Cattleya Leucothæa*. (See Awards.)

Mr. E. V. Low, Vale Bridge, Haywards Heath, was voted a Silver Banksian Medal for a group of handsome *Cypripediums*, among which were noted the showy *C. Thalia*. Mrs. Francis Wellesley, C. *Priam* magnificent, a long way the best of the forms of *C. Priam*; *C. Fairriemum* with six blooms; *C. Germaine Opoix*, *C. Actæus Fowlerianum*, *C. Leeanum Corona*, and other varieties; *Cattleya Hardyana*, *C. Fabia*, and *Lælia-Cattleya Lambeauiana*.

MESSRS. W. BAYLOR HAREFIELD & SONS, Cleeve, secured a Silver Banksian Medal for an effective display of hybrids of *Cattleya Bowringiana*, the showiest being some excellent varieties of *C. Portia*. A good lot of *Cypripedium* *insigne* *Harefield Hall*, *C. i. Sanderæ*, *C. Thalia* Mrs. Francis Wellesley, and *C. Rossettii* were also included.

MESSRS. JAS. VEITCH & SONS, Chelsea, were awarded a Bronze Banksian Medal for a group of the beautiful pure-white *Calanthe Harrisii*, whose flowers closely resembled the *C. Cooksonia* illustrated in the last issue of the *Gardeners' Chronicle*; also *Cypripedium James O'Brien* *insigne* *Harefield Hall* × *Mons. de Certe*, a large flower like a darker form of *C. i. Harefield Hall*.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed *Cattleya labiata* *Her Majesty the Queen*, a stately white form with a pure pink tint on the lip. (See Awards.)

Sir TREVOR LAWRENCE, Bart. K.C.V.O. (gr. Mr. W. H. White), showed splendid plants of *Trichosoma suavis*, *Maxillaria phenicantha* and *M. picta*, all freely flowered and delightfully fragrant, Mr. White being accorded a "Cultural Commendation."

MESSRS. EDGAR & CO., Woodford, Essex, showed a fine seedling *Cypripedium* *insigne* with very dark spotting.

The Lady AUDLEY NEELD, Grittleton, Chippingham, showed *Cypripedium Grittletonense* (Stevensii × Curtisii) and *C. Fascination* (Fasciator × *insigne* *Harefield Hall*).

Monsieur MARCEL MEYERES, Ghent, showed

Miltonia vexillaria *Leopoldii*, M. *Hyæana*, and other interesting *Orchids*.

Captain LAYCOCK, Wiseton Hall (gr. Mr. Musk), sent *Lælia-Cattleya Hy. Greenwood* *Laycock's* variety, a very handsome flower, much larger than the original.

C. J. PHILLIPS, Esq., Sevenoaks (gr. Mr. Bucknell), sent *Brasso-Cattleya* *Mme. Chas. Maron* of a dark rose colour.

AWARDS.

FIRST-CLASS CERTIFICATES.

Lælia-Cattleya Prince of Orange (L.-C. *Hipolyta* × *C. Dowiana aurea*), from Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O. (gr. Mr. H. G. Alexander).—A charming hybrid of novel colour, the sepals and petals bright chrome-yellow, the lip intense ruby-red. The spike bore seven flowers.

Brasso-Cattleya Despatch (L.-C. *Holford's* variety (B. *Phœbeana* × *C. Maudie* × *Roseana*), from Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O.—Probably the largest white *Brasso-Cattleya*, the fine flowers being broad and well expanded. The disc of the fringed lip is greenish-purple, the base having rose markings.

Cypripedium *insigne* *Westfield* variety (*bellatum* × *Curtisii*), from Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O.—Flowers of the largest of the section, cream-white, heavily tinged with deep claret-purple.

Odontoglossum Chione (parentage unrecorded), from W. R. LEE, Esq., Plumpton Hall, Manchester (gr. Mr. Woodhouse).—A grand flower with bright purple sepals and petals with white tips, and white markings at the base of the segments. The lip is white with purple spots at the base.

Cattleya *Thalia* (parentage unrecorded), from W. R. LEE, Esq.—Resembling one of the finest blotched *O. crispum*, but with broader lip. Segments heavily blotched with rose-purple.

AWARDS OF MERIT.

Lælia-Cattleya Despatch (L.-C. *Cappis* × *C. Dowiana*), from FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins).—A novelty of good size and rich colour. Sepals and petals golden-yellow tinged with copper-red. Lip glowing ruby-crimson. A most effective hybrid.

Cypripedium *Elabor* *The Strawberry* variety (*Leeanum* × *Baron Schröder*), from F. M. OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).—A very pretty, dark-coloured hybrid with flat, white dorsal sepal heavily spotted with purple.

Lælia-Cattleya *ii* *J. Biggs* (parentage unknown), from W. J. BIGGS, Esq., Browning Road, Enfield.—A very desirable novelty, with pretty flowers having bronzy-yellow sepals and petals and dark ruby-claret, crimped lip.

Brasso-Cattleya Leucothæa (B. *Nodosa* × *C. holmstediana*), from MESSRS. J. and A. A. McBEAN, Cooksbridge.—Plant of dwarf habit, and the flowers of good shape and pure white.

Fruit and Vegetable Committee.

Present, J. CHOD, Esq. (in the Chair), and MESSRS. C. G. A. NIX, A. W. Metcalfe, A. Dean, J. Vert, W. Pope, W. A. Humphreys, G. Kelf, G. Reynolds, J. Davis, P. D. Turckett, J. Jacques, G. Wythes, J. Harrison, O. Thomas, and E. Beckett.

Two seedling Apples, named *Excelsior* and *Redway*, the latter a richly-coloured fruit, raised by Mr. Charles Ross, were shown by Mr. W. POPE, of Welford Park Gardens, Newbury. MESSRS. JAS. VEITCH & SONS, LTD., King's Road, Chelsea, and Lord HILLINGDON, Uxbridge (gr. Mr. A. R. Allan), showed fruits of *Pear Dana Hovey*, which received an Award of Merit on November 24, 1908. Lord HILLINGDON also staged 12 dishes of choice Peas, including *Duchesse d'Angoulême*, *Beurre d'Inde*, *Oliver des Serres*, *President Barabe*, *Easter Beurre*, *Passe Colman*, *Josephine de Malines*, and *Duchesse de Bordeaux*. (Silver Banksian Medal.)

G. W. TYLER, Esq., Mortimer, Berkshire, set up a collection of 24 dishes of handsome, well-coloured Apples, including *Peasgood's Nonesuch*, *The Queen*, *Dumelow's Seedling*, *Lane's Prince Albert*, *Emperor Alexander*, *Blenheim Pippin*, *Court-pendu-plat*, *Cox's Orange Pippin*, and *Adams's Pearmain*.

Mr. J. RUTHERFORD sent from *Gastereaux*, Nova Scotia, baskets and dishes of exceptionally fine fruits of *Calville Blanc Apple*.

An interesting exhibit of Apples was shown by Mr. W. POPE from Welford Park Gardens. It consisted of 32 diverse varieties, named and unnamed, raised by Mr. Charles Ross, such a collection as probably no other raiser could equal. There were excellent fruits of such well-known, although comparatively new sorts, as *King Edward*, *Hector MacDonald*, *Charles Eyre*, *Guelph*, *Charles Ross*, *Excelsior*, *Ellis*, *Rival*, *Encore*, and *The Houbion*. (Silver Banksian Medal.)

The Hon. VICARY GIBBS, Aldenham House, Herts. (gr. Mr. E. Beckett), exhibited a very superior collection of Apples, comprising 80 dishes. Varieties specially noticeable were *Bramley's Seedling*, *Potts's Seedling*, *Tower of Glamis*, *Bismarck*, *Mère de Ménage*, *Beauty of Kent*, *Peasgood's Nonesuch*, *Sandringham*, *The Queen*, *Lord Derby*, *Newton Wonder*, *Charles Ross*, *Wealthy*, *Blenheim Pippin*, *Annie Elizabeth*, *Melon Apple*, *Allington Pippin*, *Adams's Pearmain*, *American Mother*, and *Rival*. (Silver-gilt Knightian Medal.)

Mrs. V. BANKS, 102, Park Street, W., showed a remarkable collection of bottled vegetables and fruits, having 120 sorts. It was one of the best of this class of exhibit yet seen at these exhibitions. (Silver Banksian Medal.)

Mrs. J. MILLER, Moylean, Marlow, exhibited numerous glass jars of chutneys, jams, pickles, syrups and marmalades. (Silver Banksian Medal.)

AWARD OF MERIT.

Apple "Sir John Thornycroft."—A hand some, round fruit of good size, and possessing a pleasant flavour. The variety was submitted at the last meeting, and the Award was granted after receiving a favourable report on the tree from a local gardener. The parentage was reported to be *Newton Wonder* and *Cox's Orange Pippin*. The novelty was shown by Lady THORNYCROFT, Bembridge, Isle of Wight.

Scientific Committee.

NOVEMBER 7. Present: Mr. E. A. BOWLES, M.A., F.L.S., F.E.S. (in the Chair); Dr. A. Voelcker, Sir Everard in Thurn, MESSRS. W. E. Ledger, J. Fraser, G. Wilson, J. W. Odell, G. Gordon, J. T. Bennett-Poe, W. C. Worsdell, E. M. Holmes, W. Hales, W. Fawcett, J. O'Brien, A. W. Sutton, R. Hooper Pearson, A. Worsley, R. A. Rolfe, and F. J. Chittenden (hon. sec.).

Ocotomeria sp.—Dr. RENDLE reported that the *Ocotomeria* referred to him at the last meeting, and shown under the name *Ocotomeria Baueri*, did not agree with the figure given by Bauer. Mr. ROLFE recognised it as *O. crassifolia*, a Brazilian species, described by Lindley, with whose type specimen in the Kew Herbarium it agrees well.

Cress with Peas.—Mr. A. W. SUTTON gave an interesting account of his experiments in crossing a *Pea* which he found in Palestine in 1904 with forms of the cultivated *Peas*. The plant found was a weak-stemmed plant, about 3 feet in height, and bearing very small, blunt pods. It had no purple colour in the leaf-axils, and was, therefore, supposed to be white-flowered (the plants being past flowering), and seed was collected. The seed was olive-green, heavily mottled with brown, varying to a dark brown. The seedlings raised in England had serrated leaflets, self- (not bi-) coloured magenta flowers, but no colour in the leaf-axils; the pods were small and obtuse, and curious in containing a white, woolly substance, similar to that contained in the pods of *Beans*. It appeared to resemble, in some measure, *Pisum quadratum*, which he had obtained from Kew; but in that the flowers are bicoloured, the leaflets entire, the seeds rounder, and not so dark in colour. In addition to these two, the only *Pea* with bi-coloured flowers and no colour in the leaf-axils known to Mr. SUTTON is one obtained from *Svalof*, under the name "Salvart." With the idea of discovering whether this wild form could be the ancestor of the white-flowered culinary *Pea* (*Pisum sativum*) or the bicoloured field *Pea* (*P. arvensis*), which some consider varieties of one species, Mr. SUTTON made about 40 crosses with various forms, but in only four cases was it possible to grow the hybrids to F₂, or further, in two of which one of the parents was a variety of *P. sativum*, and in two varieties of *P. arvense*. In all the others sterility manifested itself, and the varieties were lost; but in the four crosses mentioned more or less perfect

fertility seems to have been achieved. The crosses were made with the sole idea of discovering the relationship the Palestine Pea had to commercial Peas. Five crosses were made with round-seeded, white-flowering varieties (*P. sativum*), and sterility prevented them being grown to F_2 , similar results attending eight crosses made with wrinkled-seeded, white-flowered Peas. Six crosses with round-seeded, white-flowered, umbellate Peas (*P. sativum* umbellatum) gave only one that has continued fertile. Five crosses made with the degenerate types which constantly occur among cultivated varieties of *P. sativum*, gave only one which has continued fertile. Sixteen crosses with bicolor-flowered types (*P. sativum*) resulted in only two which have continued fertile. The F_1 hybrids were, as a rule, taller than the Palestine Pea, and had leaflets more or less serrated; the flowers were bicoloured. In F_2 plants, with white flowers and entire leaflets occurred, but none was found resembling the Palestine Pea, but with white flowers. It would thus appear that the Pea occurring wild in Palestine is not the plant from which the cultivated forms have been derived. Mr. SUTTON exhibited seeds of the wild form and of the cultivated ones with which it was crossed. It was unanimously resolved, on the motion of Mr. Holmes, seconded by Mr. Bennett-Poë, to recommend the award of a Certificate of Appreciation to Mr. SUTTON for his work in connection with these Peas.

Interesting Orchids.—Mr. J. O'BRIEN showed some interesting Orchids on behalf of the Rev. Mr. FLETCHER, including Bulbophyllum Medusae, Catasetum Gnomus of Reichenbach, and a species of Epidendrum which Mr. ROLFE later identified as *E. Harrisoniae*, Hook (*Bot. Mag.* t. 6392), a native of Brazil, and a somewhat variable plant.

Primula farinosa.—Mr. GORDON remarked that he had noticed a form of *Primula farinosa* in the Alps with a distinct white centre to the flower, and with the tips of the petals pink. He dug the plant up, but the new flowers came more and more like the type, until the last ones were entirely like it.

Morphology of *Cattleya labiata*. Mr. G. WILSON showed flowers of *Cattleya labiata* showing false periora, produced on a plant which each year produces malformed flowers, though not always malformed in the same fashion as in the present case.

Ceropegias.—Mr. LEDGER exhibited a flower ing spray of *Ceropegia Rothii* × *Gurke*, new hybrid. Raised by Dr. Paul Roth, of Bernburg, from seed obtained in 1903 by crossing *C. Sandersonii*, Hook, with pollen of *C. radicans*, Schlecht, two South African species. A twining succulent, with fleshy leaves, intermediate between both parents. The flowers resemble those of the seed parent in colour, but the umbrella-like apex in that species is here modified to erect, replicate lobes, cohering at the top, somewhat as in *C. hybrida*, N. E. Br. (*in Gardeners' Chronicle*, December 8, 1906), a flower of which was also shown. Mr. LEDGER stated that, in describing the last-named plant, Mr. N. E. Brown drew attention to the peculiar structure of the Asclepiads, unique among Dicotyledons in having the pollen agglutinated into a waxy mass, and so placed that fertilisation would seem to be only possible through insect agency, and that to do so artificially would, if at all possible, prove a very delicate and difficult operation. Dr. Roth has, however, successfully accomplished, in this instance, the first artificial hybridisation to be recorded in the genus *Ceropegia*. The plant is described in *Monatsschrift für Kakteenkunde*, for January, 1911, pages 8-9. Mr. LEDGER also showed a flowering spray of *C. Rendallii*, N. E. Br., a slender-growing, tuberous-rooted species. The corolla lobes of the delicate and beautiful flowers are united into an umbrella-like canopy, of a bright-green colour, supported on five short stalks over the mouth of the tube, which is white in the upper part and grey-green in the inflated base. This species belongs to the section which includes *Sandersonii*, *Monteiroae*, and the not-yet-introduced *Ambrata*. *C. Rendallii* was first sent to Kew early in the year 1894, by the late Dr. P. Rendall, of Barberton, after whom it was named. (*Kew Bulletin*, No. 87, March, 1894, 100.) Long left to cultivation a tuber (without name) was sent in 1908 by Mr. George Thorn-

croft, of Barberton, to the late Mr. W. E. Gumbleton, who presented it to Mr. Ledger, and from which all the plants at present grown are derived. Mr. Ledger has raised a hybrid from *C. Barklyi*, Hook f., fertilised, in 1909, by pollen of this species.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

NOVEMBER 2.—Committee present: Rev. J. Crombleholme (in the Chair); and Messrs. R. Ashworth, J. Bamber, W. R. Lap, C. Parker, G. H. Peace, H. Thorp, Z. A. Ward, J. C. Cowan, J. Cypher, W. Holmes, A. J. Keeling, D. McLeod, W. Stevens, and H. Arthur, secretary.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya labiata alba var., "Richard Le Doux," from R. LE DOUX, Esq.

Oncidium ornithoglyphum album, from G. H. PEACE, Esq., and

Cattleya labiata var., "W. R. Lee," from W. R. LEE, Esq.

AWARDS OF MERIT.

Cattleya labiata, var., "Helene," and *Laelia Bella* (*majulis* × *purpurata*), a very fine flower, intermediate between the two parents, both from W. R. LEE, Esq. *Cattleya Armstrongae*, "Ward's" var., *C. Armstrongae* var., "Mrs. Ward," *C. Wallisanae* (*back* *Princedale* *alba* × *Harrisoniae*), *Cypripedium Perfection*, "Ward's" var., and *C. Acteas*, "Ward's" var., all from Z. A. WARD, Esq. *Cattleya Fobia*, var., "Prince John," from J. MCCARTNEY, Esq., a fine flower, with intensely-coloured lip. *Cypripedium Pyrrha*, "Thompson's" var., *C. Griffliton* (*Stevensii* × *Curtisii exquisitum*), *C. Spicerianum* × *Thompsonii*, unnamed, and *Odontoglossum hololeuca*, "Walton Grange" var., these four shown by WM. THOMPSON, Esq.

VENTNOR AND UNDERCLIFF HORTICULTURAL AND CHRYSANTHEMUM.

NOVEMBER 7, 8.—The annual show of the above society took place on these dates in the Ventnor Town Hall.

In the plant classes, the most successful exhibitor was J. C. TOMPKINS, Esq. (gr. Mr. G. Plumley), who won the 1st prizes for (a) two plants of large-flowering Japanese varieties; (b) one specimen plant of a Japanese variety; and (c) one plant of an incurved variety. In the open classes for cut blooms, Mr. R. MURRAY was awarded the 1st prize for 24 cut blooms of Japanese varieties; 2nd, Col. STEVENSON (gr. Mr. W. Woods). For 12 cut blooms of this type Mr. R. MURRAY was placed 1st, and this gentleman was also successful in the classes for (a) 12 cut blooms arranged with foliage, (b) 12 incurved varieties, and for (c) a collection of single blooms. Mr. W. GEE being awarded the 2nd prize in the class for single blooms. Col. STEVENSON excelled in the class for six blooms of Japanese varieties; 2nd, Mr. R. MURRAY. In the classes for a decorated table and an epergne of Chrysanthemums, Miss A. E. LESTER was awarded the 1st prizes, whilst Mr. W. GEE showed the best hand bouquet. Mr. J. C. TOMPKINS was awarded the 1st prize for a group arranged by professional gardeners, whilst Mrs. HARNEMANN was successful in the class for a group shown by an amateur. In the open classes for miscellaneous plants, Miss MITCHELL was awarded the 1st prize for six table plants.

STIRLING CHRYSANTHEMUM.

NOVEMBER 8, 9.—This society held its 22nd annual show in the Albert Hall, Stirling, on the above dates. A large increase was made in the fruit section, the display in the Grape classes being especially fine. The large blooms of Chrysanthemums were another special feature.

The principal class for cut blooms called for six vases, three blooms in each, in eight varieties. Mr. GEO. STEWART, Tulliallan, secured the premier position, thus winning the President's Cup. 2nd, Mr. JAS. SMALL, Norwood, Alloa.

There were numerous exhibits of single Chrysanthemums, the variety Mary Richardson being

the most prominent. In this section Mr. WM. WATT, Bridge of Allan, showed in fine form.

Specimen Chrysanthemum plants were good. Mr. HENRY GRAY, Park Terrace, Stirling, led in the class for four plants of Japanese varieties, and Mr. R. JENNER, Newhouse, occupied the premier position for plants of single-flowered varieties. There were the usual classes for Primulas, Roman Hyacinths, table plants, Ferns and other foliage plants.

Excellent Grapes were shown by Mr. JAS. SMALL, Norwood, and Mr. MITCHELL, Airthrey Castle, showed good "Muscat" Grapes and Pears.

Vegetables made a meritorious display. Mr. SHAW, Kippen, staged the winning exhibit in the class for a collection of vegetables. 2nd, Mr. JOHN OGILVIE, Larbert. 3rd, Mr. GEO. COLTART, Alloa. Mr. GEO. WATSON, Kippen, had an uninterrupted run of success in the amateur section.

Honorary exhibits were shown by Mr. JOHN CRAIG, Mr. MCOMISH, and Mrs. TASKER, all of Stirling; while Mr. JAMES THOMSON, St. Ninians, had a stand of early-flowering Chrysanthemums. Messrs. GEORGE BUNYARD & Co., Royal Nurseries, Maidstone, sent an exhibit of Apples which added greatly to the attractiveness of the exhibition. As a result of the disastrous gale on Sunday, November 5, the glass-houses of Messrs. DRUMMOND, of Stirling, were blown down, preventing them from exhibiting, as intended, over 60 varieties of early-flowering Chrysanthemums.

DERBYSHIRE GARDENERS' ASSOCIATION.

NOVEMBER 10, 11.—The annual exhibition of the Derbyshire Gardeners' Association was held on Friday and Saturday at the Albert Hall, Derby on these dates, and although there was a fine show, the attendance was not satisfactory.

Special mention may be made of a collection of Begonias of the Gloire de Lorraine type, including Turnford Hall, which filled a space the whole width of the hall; the exhibitor was Capt. DRURY LOWE, Locke Park.

The Rev. HENRY BUCKSTONE (gr. Mr. Sharnbrook) staged a table of Cyclamens; amongst them was the new fringed salmon variety Mrs. Buckstone. He also showed Begonia Ideala.

The 1st prize for a group of Chrysanthemums arranged for effect, was exhibited by C. W. CATT, Esq., Duffield (gr. Mr. J. H. Coley).

Cut blooms were well represented. For 18 Japanese varieties, Mr. COLEY led with Master James, Mrs. Marsham, Sir F. Crisp, Lady Crisp, Evangeline, Lady Talbot, Leigh Park Wonder, Purity, W. Jinks, H. Perkins, Reginald Vallis, and Mrs. C. Beckett. Capt. DRURY LOWE (gr. Mr. Sherwin) was placed 2nd. Mr. WOOD excelled in the class for 12 Japanese varieties; 2nd, Mr. F. MEAKIN.

For six vases of Japanese varieties Mr. J. WOOD won the 1st prize and Mr. F. MEAKIN the 2nd prize. For 12 incurved blooms, Mr. WOOD again was successful and Mr. MEAKIN 2nd.

In the class for six vases of single Chrysanthemums, Mr. J. COLEY won the 1st prize and Mr. SHERWIN the 2nd prize.

The prize for the table decoration of Chrysanthemums was won by Mrs. GARNETT, Hatton; while Mrs. NORMAN, Derby, was successful in the classes for a bouquet and a wreath of Chrysanthemums.

On Saturday morning the local school children were admitted to the show, when Mr. Sharnbrook gave a lecture on "School Gardening."

CHESTER PAXTON.

NOVEMBER 14, 15.—This society, as usual, arranged an autumn exhibition in the Town Hall.

CUT BLOOMS.—In the class for 18 Japanese Chrysanthemums in six varieties, arranged in vases, Sir GILBERT GREENALL, Bart. (gr. Mr. C. Goves), won the 1st prize with an excellent exhibit, having fine blooms of such sorts as Frances Jolliffe, Hon. Mrs. Lopes and President Viger; 2nd, R. BROCKLEBANK Esq. (gr. Mr. Thos. Winkworth). Sir GILBERT GREENALL also excelled in the class for 12 Japanese blooms shown in two vases. Mr. J. FLET showed the best five blooms in one vase, and Mr. G. MORGAN the best three. For five incurved blooms

Sir GILBERT GREENALL was again to the fore, having splendid blooms of *Calypso*; and he also showed best in the class for 12 Japanese blooms arranged on boards. Mr. A. WALKER won in the class for six vases of naturally grown flowers; whilst in the classes for six and three vases respectively Messrs. A. D. P. CAMPBELL were the 1st prize winners. For a group of single Chrysanthemums, the Rev. Canon W. YEBBURGH (gr. Mr. A. Walker) lead with a pleasing collection, and the best representative group of the flower was shown by T. GIBBONS FROST, Esq. (gr. Mr. T. Gilbert). Mrs. THOMPSON (gr. Mr. J. Hill) won in the class for six single Chrysanthemums with charming plants.

FRUIT.—The best two bunches of black Grapes were shown by Sir GEO. MEYBRICK, Bart. (gr. Mr. W. Pilgrim), and the best two bunches of white Grapes by E. LEIGH, Esq. (gr. Mr. H. Bateson). Col. THOS. GEE (gr. Mr. P. Greene), Tallycain, won the 1st prize for six dishes of dessert Apples with excellent fruits; 2nd, Mr. E. PORRITT, Christleton Grange. Mr. GREENE was again to the fore in the class for 12 varieties of kitchen Apples. Mr. PORRITT led for 24 varieties of Apples and Pears, with a fine collection, the best being (Apples) Peasgood's Nonesuch, Newton Wonder, Bismarck, Warner's King and Bowhill Pippin; (Pears) Pitmaston Duchess, Charles Ernest and Beurré Diel; 2nd, C. ROBERTS, Esq. (gr. Mr. H. Dutton), Upton. Prominent exhibitors in the single dish classes for Apples were Messrs. PILGRIM, J. WEAVER, P. GREENE, J. SHAW, G. FAULKNER and E. PORRITT.

Mr. J. FLEET staged the best six dishes of dessert Pears.

Amongst the non-competitive the Duke of WESTMINSTER (gr. Mr. N. F. Barnes) contributed a magnificent collection of Apples and Pears.

Messrs. CLIBRANS, Altrincham, set up a charming bank of Begonias in many varieties, all the plants being well-flowered.

Messrs. DICKSONS, Chester, furnished the end of the room with a pleasing display of Chrysanthemums. In each case the Society's Gold Medal was awarded.

Messrs. McHAYLE & Co. had a display of Chrysanthemums, fruit, &c., for which a large Silver Medal was awarded.

Mr. W. RICHARDSON staged a group of Cyripediums, Mr. C. J. Houghton trained Chrysanthemums, and Mr. J. FRANCIS a collection of Cacti.

WOOLTON CHRYSANTHEMUM.

NOVEMBER 15.—The number of entries at this annual show exceeded those of last year by some 50, and the exhibits were generally of average quality, so that the results were highly satisfactory. This exhibition is noted for fine displays of single Chrysanthemums, as one of the most important prizes, the "Tate" Challenge Trophy, is offered for these flowers; P. W. BARR, Esq., last year's winner, was again successful, thus winning the award outright.

For 24 Japanese blooms, Sir W. H. TATE, Bart. (gr. Mr. G. Haigh), led with a good, even stand, followed by W. TOD, Esq. (gr. Mr. G. Eaton), and Lt.-Col. GASKELL, J.P. (gr. Mr. J. Stoney), in this order.

The finest exhibit of 18 blooms was shown by Mrs. CLARK (gr. Mr. J. Clarke); whilst in the class for 12 blooms, P. W. BARR, Esq. (gr. Mr. T. Keightley), was successful. Mrs. CLARK won the 1st prize for 18 incured blooms; whilst for 12 blooms of this type A. S. MATHER, Esq. (gr. Mr. H. Howard), was successful. The best nine vases of singles, nine flowers in each vase, were shown by P. W. BARR, Esq. (gr. Mr. T. Keightley), his best varieties being Meta, G. W. Forbes, Altrincham Crimson, and A. K. Askell. W. TOD, Esq. (gr. Mr. G. Eaton), and A. T. MATHER, Esq., were awarded the 2nd and 3rd prizes respectively. Mr. J. MADDOCKS excelled in the classes for bouquets and sprays of flowers, in a keen competition.

H. G. SCHINTZ, Esq. (gr. Mr. R. Hitchman), won four 1st prizes in the pot plant classes, with large specimens, carrying excellent blooms. W. CUNNINGHAM, Esq. (gr. Mr. W. Wilson), secured three 1st prizes with well-trained specimens.

In the classes for other plants, Sir W. H. TATE, Bart., had the best Palm; W. TOD, Esq., (1) the best specimen Fern, (2) the best speci-

men of any other foliage plant, and (3) the best Cyripedium. Col. J. P. REYNOLDS (gr. Mr. G. Lowe) led for Begonias, and A. T. MATHER, Esq., for any other flowering plant, with a good *Endemum*.

J. W. HUGHES, Esq. (gr. Mr. J. McColl), was successful in the class for black Grapes, and in several of the classes for Apples and Pears. W. CUNNINGHAM, Esq., was awarded the 1st prizes for white Grapes and stewing Pears. Other successful exhibitors of fruit were Sir W. H. TATE, Bart., and J. B. HINSHAW, Esq. (gr. Mr. H. Hudson).

The classes for vegetables were strongly contested. H. G. SCHINTZ, Esq., showed the choicest collection.

NEWCASTLE-ON-TYNE CHRYSANTHEMUM.

NOVEMBER 15, 16.—This annual exhibition was this year of greater importance than usual, as it was held in conjunction with a Fruit Show and Congress arranged by the North of England Horticultural Society. The combined shows were accommodated in the large Corn Market and Town Hall, Newcastle-on-Tyne, and resulted in one of the finest autumn exhibitions held in the provinces. Papers were given both in the afternoon and evening of each day in the Mining Institute. The syllabus included such subjects as fruit growing, horticultural education, summer flowering Chrysanthemums, and fruit bottling.

The Chrysanthemum show was the finest ever seen in the North of England, and all classes were well contested.

In the class for 12 vases of the Japanese type in 12 varieties, Captain J. F. LAYCOCK, Wiseton, Bawtry, Notts (gr. Mr. G. Musk), was awarded the 1st prize, which included a silver cup; this being the third year in succession he has won the cup now becomes his absolute property. The blooms included Mrs. R. H. Marsham, Mrs. F. C. Stoop, Master David, Rose Pockett, F. S. Vallis, Reginald Vallis, Master James, Mrs. W. Knox, Eclipse, Sir Frank Crisp, J. Lock, and the three of most blooms in the show of Mrs. A. T. Miller. 2nd, The Countess of RAVENSWORTH, Cresswell Hall, Morpeth (gr. Mr. R. Addeson).

In the class for six vases of the Japanese type, Capt. LAYCOCK was placed 1st with finely-finished flowers of Mrs. F. W. Vallis, Master James, Melchett Beauty, and Mrs. A. T. Miller; 2nd, C. LACR THOMPSON, Esq., Brampton (gr. Mr. A. W. Appleton).

For four vases of the Japanese type, C. J. LAYCOCK, Esq., secured the 1st award; 2nd, R. D. MARSHALL, Esq.

For three blooms of white Japanese varieties, Captain LAYCOCK showed the winning exhibit; 2nd, Hon. Mrs. A. ROBERTSON, Norham-on-Tweed (gr. Mr. G. Little).

For a group of Chrysanthemums and other flowering and foliage plants, A. E. BAINBRIDGE, Esq., Lynwood, Jesmond (gr. Mr. T. Bell), was placed 1st; 2nd, T. KENDALL, Esq., Preston Hall, N. Shields (gr. Mr. J. Hitherington).

Captain LAYCOCK was awarded the 1st prize in the class for three blooms of a yellow Japanese variety; 2nd, R. D. MARSHALL, Esq.; whilst for three of any other variety, excepting white or yellow, Hon. Mrs. ROBERTSON was successful.

In the classes for Incured Chrysanthemums, Capt. LAYCOCK staged the winning exhibit in each. The variety *Buttercup* and the Japanese variety *Mrs. A. T. Miller* above mentioned was awarded the North of England Horticultural Society's Silver-gilt Medal. The single-flowered classes were well contested, and some fine varieties were included.

In the classes confined to growers in Northumberland and Durham, the best four vases of the Japanese type, dissimilar, were shown by A. E. BAINBRIDGE, Esq.; 2nd, Mrs. TRANTER, The Grange, Wickham.

For two vases the Countess of RAVENSWORTH was successful; J. B. SIMPSON, Esq., Wylam (gr. Mr. Kerr), being placed 2nd.

The Rt. Hon. W. RUNCIMAN, Esq. (gr. Mr. J. Askew), showed the winning exhibit in the class for four vases of Incured varieties; 2nd, Mr. W. THOMPSON.

The classes for bush plants were well contested, and were a striking feature of the show. Exhibits of vegetables were of a high standard of excellence, and mostly grown by the local pitmen.

TRADE EXHIBITS

The North of England Horticultural Society made the following awards:—

Gold Medals to Messrs. CLIBRANS, Manchester, for vegetables and winter-flowering Begonias of the Mrs. J. Heal section, and Messrs. KENT & BYRON, Darlington, for flowers, including Chrysanthemums, Lilliums, and Carnations, also hardy fruits.

Silver-gilt Medals were awarded to Messrs. FENNERS, Newcastle-on-Tyne, for vegetables; Messrs. W. LAWRENSEN, Yarm and Newcastle, for fruit, Heaths, and other winter-flowering plants; and Messrs. MICHIE & Co., Alnwick, for a collection of 120 dishes of Apples grown in the three northern counties.

Silver Medals to Messrs. FELL & Co., Hexham, for Apples, foliage and flowering plants; Mr. H. EVANS, Newcastle, for dwarf decorative Chrysanthemums grown in small pots; FOUR OAKS Co., Sutton Coldfield, for spraying apparatus and garden tools; Messrs. RENSRAW, Sunderland, for Bamboo and Reed covering; W. J. WATSON, Ltd., for vegetables and flowering plants; and Messrs. J. ROBINSON & SONS, Hexham, for fruit and hardy shrubs.

Bronze Medals were awarded to Messrs. DICKSONS, Chester, for Chrysanthemums, and Messrs. PORTEOUS & THOMPSON for Apples.

NORTHERN COUNTIES FRUIT CONGRESS COMPETITIVE CLASSES.

In the class for 12 dishes of hardy fruits grown by an amateur employing a regular gardener, the 1st prize was won by Mrs. CLANTON, The Chesters (gr. Mr. J. Cocker). This competitor showed Apples, including Charles Ross, Blenheim Pippin, Lane's Prince Albert, Lord Derby, King of Tompkins County, Emperor Alexander, Peasgood's Nonesuch, and five Pears Beurré Bosc and Beurré Diel. 2nd, DR. STEWART, Hexham (gr. Mr. H. Lloyd). 3rd, E. A. HARRISON, Esq., Hexham (gr. Mr. J. M. Robson).

In the class for 12 dishes of Apples, Councillor W. ALEXANDER, Long Close, Hexham, was successful, showing Bramley's Seedling, Newton Wonder, Golden Spire, Worcester Pearmain, King of the Pippins, Lord Derby, Lane's Prince Albert, Royal Jubilee, Alfriston, Warner's King, Bismarck, and Cox's Orange Pippin. 2nd, Lord RAVENSWORTH (gr. Mr. E. Tindale), whose best dishes were Cullin Pippin, Mère de Ménage, and King of Tompkins County.

In the class for nine dishes, the 1st prize was won by Councillor ALEXANDER, Hexham, who showed Lord Derby, Warner's King, Eddingville Seedling, Bramley's Seedling, Newton Wonder, Bismarck, Worcester Pearmain, King of Pippins, and Cox's Orange Pippin. 2nd, A. B. COLLINGWOOD, Esq., Lilburn Town (gr. Mr. Lovatt).

Councillor ALEXANDER, Hexham, won in the classes for cooking Apples and for a dish of Newton Wonder; 2nd, Mr. G. PATTISON.

Councillor ALEXANDER was placed 1st in a strong competition for three dishes of cooking Apples; 2nd, W. J. SANDERSON, Esq., Warkworth (gr. Mr. W. Sage).

In the class for three dishes of dessert Apples, Sir H. D. BLACKETT, Bart., Matfen Hall, Corbridge (gr. Mr. W. Gentles), was successful with Cox's Orange Pippin, Lamb Abbey Pearmain, and Allington Pippin.

There were 20 competitors in the class for Bramley's Seedling, in which Mr. T. SIMPSON, Hexham, excelled.

For three dishes of Pears, Mr. DIXON, Wylam, excelled with Douradon, Beurré Diel and Doyenne du Comice; 2nd, JAS. KNOTT, Esq., Close House, Wylam (gr. Mr. J. Snell).

The Earl of DURHAM, Lambton Castle (gr. Mr. Smith), was successful in the class for a dish of Pears, showing Beurré Diel.

In the society's open class for two dishes of Apples, Captain J. F. LAYCOCK, D.S.O., Wiseton, Notts. (gr. Mr. G. H. Musk), was successful; 2nd, Lord RAVENSWORTH (gr. Mr. Tindale); whilst for two dishes of Pears, Mr. E. TINDALE won the 1st prize; 2nd, Mr. H. SMITH.

A group of 50 dishes of the leading varieties of Apples were shown from the Northumberland County Council plots by Mr. CHISHOLM, Lecturer under the Northumberland County Council. (Silver Medal.)

A fruiting plant of Banana was exhibited by the Right Hon. C. TREVELYN, Bart., Wallington (gr. Mr. E. Keith). (Silver Medal.)

BOLTON CHRYSANTHEMUM.

NOVEMBER 17, 18.—The autumn show of this society was held in the Albert Hall on these dates. The hall was overcrowded, many of the exhibits being set up in the annex and long passages.

The most important class was for a circular group of miscellaneous plants arranged for effect in the centre of the hall. The entries numbered four, all of which were of high quality. The 1st prize was awarded to JOHN HARWOOD, Esq. (gr. Mr. W. Burgess), for a charming display, in the centre being a fine Palm, whilst single-stemmed Crotons were well furnished with foliage. Cattleyas, Oncidiums, Cyclamens, Sonerilas, and other flowering plants provided bright colours; J. W. MAKANT, Esq. (gr. Mr. H. Shone), was placed 2nd, showing an effective exhibit, with a liberal display of Orchids; and 3rd, E. T. CROOK, Esq. (gr. Mr. J. Wainwright).

In the class for a group of undisbudded Chrysanthemums, there were three contestants. G. T. PECK, Esq. (gr. Mr. B. Hardy), excelled in this class, his exhibit being characterised by brightness and good staging; Mr. W. BURGESS was a close 2nd, and 3rd, Miss A. N. PHILIPS, Prestwich (gr. Mr. D. Wilson).

Mr. WILSON was the only exhibitor for the large-flowered group, having good blooms well arranged.

J. McCARTNEY, Esq. (gr. Mr. J. Holmes), secured the leading award for a table of Orchids artistically arranged with good types of Cattleyas, Cypripediums, Oncidiums and other flowers.

In the three classes for Roman Hyacinths, Mr. D. WILSON secured two 1st prizes, and Mr. B. HARDY one 1st prize, all the plants being well grown. W. EDGE, Esq. (gr. Mr. M. Taylor), was successful with Primulas. Mr. JAS. ENTWISTLE secured the 1st award with a choice vase of Carnations, as usual at this show, exhibited in good form, fine, massive blooms of good colour being staged in the premier class for 12 Japanese and 12 incurved blooms, in which Sir GILBERT GREENALL, Bart., Warrington (gr. Mr. C. Goves), excelled; his incurved varieties were specially well staged.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 20.—The Executive Committee of this Society met at Carr's Restaurant, Strand, on this date. Mr. T. Bevan occupied the chair.

The Secretary was authorised to make the necessary arrangements for entering into a contract with the Crystal Palace Co. for holding the shows of the Society there next year. The interim financial statement was submitted, showing a substantial balance.

The Chairman of the Floral Committee, Mr. Crane, reported that that afternoon's meeting had been a record one. One hundred and six novelties had been presented for award, of which 14 had been awarded certificates, 16 were commended, and one received an award for its colour.

The Rochford and District Chrysanthemum Society was admitted in affiliation, and 10 Fellows and 23 members elected.

NATIONAL VEGETABLE.

NOVEMBER 21.—The third annual general meeting of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on Tuesday last. Mr. Alexander Dean presided. The annual report and balance-sheet showed that the Society is in a sound financial position. Owing to the poor attendance at the annual exhibition last year, it was decided to hold next year's show at Watford, where there is a large class interested in gardening and farming. The exhibition is fixed for October 2, and it is expected that the schedule will be ready for issuing in a few weeks time.

The following officers were elected:—The Duke of Portland was re-appointed president; and the vice-presidents re-elected. Mr. G. Wythes having resigned the office of treasurer, Mr. H. J. Wright was elected in his place. Mr. F. G. Quick was re-elected hon. secretary, Mr. A. Dean chairman of committee, Mr. O. Thomas vice-chairman, and a small sub-committee was appointed to prepare the schedule, to which offers of prizes are invited.

SCOTTISH HORTICULTURAL.

NOVEMBER 16, 17, 18.—The 26th annual Chrysanthemum exhibition of this association was held in the Waverley Market, Edinburgh, on the foregoing dates. The last day (Saturday) was fine; but with this exception, the weather conditions, though mild for the season, were most disagreeable. The first day was stormy, with strong blasts of rain and sleet; and on the second day, the rain descended in an incessant downpour. Notwithstanding this, the attendance was extremely satisfactory; the receipts at the door, exclusive of tickets, were £30 in excess of those of the four-day show of 1910, and £14 in excess of those of the three-day show of 1909. The total number of visitors was 21,173, 10,285 of whom were present on the last day.

In comparison with the figures of former years, the entries did not vary much from the average for the past five years. The general quality of the exhibits was of a very high standard. In the big bloom classes, it was the general opinion that finer flowers have never been staged, and that their equal has seldom been seen. Some of the blooms in the 1st prize exhibits in Classes 1 and 2 were magnificent.

In the premier class for cut blooms, consisting of 15 vases of Japanese Chrysanthemums in 15 varieties, three blooms in each vase, there were six entries. The awards for this class are the City of Edinburgh and Queen Victoria Memorial prizes, presented by the Magistrates and Town Council. The 1st prize was won by Captain STIRLING, of Keir, Dunblane (gr. Mr. Thos. Lunt); the prize consisting of the City of Edinburgh Cup (to be won three times) and £12. This is the second time that the cup has been won by the same competitor. The 2nd prize was awarded to JOHN JAMESON, Esq., J.P., D.L., St. Marnecks, Co. Dublin (gr. Mr. James McKellar); the 3rd to Sir JAMES SIVEWRIGHT, K.C.M.G., Tulliallan Castle, Kincardine-on-Forth (gr. Mr. George Stewart); and the 4th to DAVID THOMSON, Esq., Greenfield, Alloa (gr. Mr. L. McLean). The varieties in Captain STIRLING's exhibit, with the points awarded, were as follows:—

Variety shown.	Maximum Points.	Points Awarded.
Hon. Mrs. Lopez	12	10½
Purity	12	11
Lady E. Lettchwo	12	10
White Venosa	12	9½
George Hemming	12	10
Edith Jamieson	12	10
Mrs. F. W. Vallis	12	10½
D. B. Crane	12	10½
Mrs. L. Thorn	12	10½
Mrs. Pearson	12	10
Mrs. A. T. Miller	12	11
Bessie Godfrey	12	10½
F. S. Vallis	12	10½
R. Vallis	12	10
White Queen	12	11½
	150	156

Mr. JAMESON's blooms, with the points awarded, were:—F. S. Vallis (8), Master David (10), Lady Talbot (10), Mrs. Chas. Penford (8½), Frances Jolliffe (10½), J. Lock (7½), Rose Pockett (10), W. Mease (10), Mrs. L. Thorn (9½), Lady Conyers (10½), Mrs. W. Knox (9), Miss E. Green (8½), Hon. Mrs. Lopez (9), Edith Jamieson (9), and D. B. Crane (10½).

The Scottish Challenge Cup, competition for which is confined to Scottish gardeners and amateurs, together with £6 in money, was offered for eight vases of Japanese Chrysanthemums in eight varieties, three blooms in each vase. It was won this year for the first time by WM. RAMSAY, Esq., Bowland, Stow (gr. Mr. Robt. Honeyman), with an extremely well-grown collection, the total points awarded falling short of the maximum only by seven. The varieties were Lady Talbot, Mrs. A. T. Miller, Hon. Mrs. Lopez, Mary Poulton, Mrs. F. W. Vallis, Mrs. L. Thorn, Algernon Davis, and Purity. The bloom of Mary Poulton was awarded the Silver Medal offered for the best bloom in the show. JOHN GRAEME THOMSON, Esq., of Norwood, Alloa (gr. Mr. James Small), was 2nd in this class with 78 points. 3rd, JAMES E. B. BAILLIE, Esq., of Dochfour, Inverness (gr. Mr. R. Mackenzie), with 77 points.

Mr. RAMSAY also won the 1st prize in the class

for six vases of Japanese Chrysanthemums in six varieties, three blooms in each vase, with an aggregate of 43 points; Mr. GRAEME THOMSON was placed 2nd with 42½ points; and W. T. MACLELLAN, Esq., Auchanault, Helensburgh (gr. Mr. H. MacSkimming), was 3rd with 40 points.

In the class for 12 blooms of Japanese Chrysanthemums, in 12 varieties, shown on boards, Captain STIRLING was placed 1st, Mr. GRAEME THOMSON 2nd, and Mr. J. E. B. BAILLIE 3rd.

For two vases of Japanese Chrysanthemums, one variety, three blooms in each vase, the 1st prize-winner was JOHN JAMESON, Esq.; 2nd, Col. MORE NISBETT, The Drum, Midlothian (gr. Mr. R. Whannel); 3rd, Col. E. R. STEWART RICHARDSON, of Ballathie, Perthshire (gr. Mr. J. E. Davies).

Capt. STIRLING excelled in the class for four vases of Japanese Chrysanthemums, in 12 distinct varieties, three blooms in each vase, the 2nd prize being awarded to Mr. J. E. B. BAILLIE.

The best four vases of Japanese Chrysanthemums, in four varieties, three blooms in each vase, were shown by W. H. DOBIE, Esq., Dollarbeg, Dollar (gr. Mr. J. Walde); 2nd, Mrs. E. PACTON, Clarendon, Alloa (gr. Mr. A. Gauld).

Mr. DOBIE also excelled in the class for two vases of Japanese Chrysanthemums, in six distinct varieties, three blooms in each vase; 2nd, J. H. YOUNGER, Esq., Bughrigg, Coldstream (gr. Mr. J. Loan).

In the class for two vases of Chrysanthemums in three varieties, quality and decorative effect to be considered of first importance by the judges, the 1st prize was awarded to the Earl of WEMYSS, Gosford, East Lothian (gr. Mr. W. Galloway); 2nd, Mrs. W. L. BOASE, Binrock, Dundee (gr. Mr. J. Beats).

The best single vase of Chrysanthemums, disbudded, and arranged for effect, was shown by Lord ELPHINSTONE, Carberry Tower, Musselburgh (gr. Mr. D. Kidd); 2nd, the Earl of HOME.

C. W. COWAN, Esq., Dalhousie Castle, Bonnyrigg (gr. Mr. W. G. Pirie), was placed 1st for six vases of single Chrysanthemums, in six varieties, not more than 12 sprays in each vase, the Earl of WEMYSS being placed 2nd, and Sir WILFRED LAWSON, Bart., Brayton, Carlisle (gr. Mr. A. Knight), 3rd.

Mr. COWAN was also successful in the class for three vases of single Chrysanthemums in three varieties, and again the Earl of WEMYSS was 2nd.

For two vases of winter-flowering Carnations the 1st prize was won by Lord STRATHEDEN AND CAMPBELL, Hartrigg House, Jedburgh (gr. Mr. A. Williams); 2nd, J. H. HOULDSWORTH, Esq., Castlebank, Lanark (gr. Mr. A. McKiven).

In a class, open only to market-growers, for six vases of Chrysanthemums in six varieties, three single and three double varieties, and not more than 12 sprays or disbudded blooms, there was only one competitor, Mr. J. BRUCE, Davidson's Mains, Midlothian, and he was awarded the 1st prize.

The Silver Medal offered for the best new Chrysanthemum not yet in commerce was awarded to Messrs. W. WELLS & Co., Merstham, for Pockett's "White Australia."

Miss NEWLANDS, Leith, was the only competitor in the class for a bride's and two bridesmaids' bouquets, and she was awarded the 1st prize. T. G. BISHOP, Esq., Dalmore, Helensburgh (gr. J. Hood) showed the best bouquet of Chrysanthemums, hand-bouquet of the same flower, and basket of hardy foliage and berries. Sir W. LAWSON won 1st prizes for (a) a bouquet of Carnations, and (b) a basket of flowers (excluding Chrysanthemums).

In the class for a decorated dinner table (Orchids excluded) A. SINCLAIR HENDERSON, Esq., was awarded the 1st prize. The decoration consisted of pale pink-coloured Carnations, with foliage.

In the classes for Chrysanthemum plants the principal prize-winners were Lady STELL, Boroughfield, Edinburgh (gr. Mr. W. Michie), and D. R. W. HINE, Esq., Hollywood, Edinburgh (gr. Mr. W. Pulman). The Earl of HOME, K.T., and Sir JOHN GILMORE, Bart., showed the best Palms. Sir WM. YOUNGER, Auchan Castle, Moffat (gr. Mr. J. Macgregor) was 1st for Dracenas; Mrs. AIXMAN, West Colinton House (gr. Mr. R. Dickson) for Primula sinensis; the Hon. Mrs. BAILLIE HAMILTON, Langton, Duns (gr. Mr. G. D. Kerr), for Primula obconica; Mrs. MACKINNON for six table plants, excluding Ferns; ALEX. COWAN, Esq., Valleyfield, Penicuik (gr. Mr. J. Turnbull) for six dwarf hardy

Ferns; Mr. A. JOHNSTONE, Hay Lodge, Edinburgh, for six Ferns suitable for the table; Mrs. WAUCHOPE, of Niddrie, Craigmillar (gr. Mr. J. Alexander) for six plants of *Salvia splendens*; Provost DUNCANSON, Fenton House, Alloa (gr. Mr. C. Palmer), for six pots of Roman Hyacinths; the Earl of HOME, K.T., for six pans of Lily of the Valley; Mrs. BAILLIE HAMILTON, for six Cyclamens; Major THORBURN, Craigerne, Peebles (gr. Mr. J. McNeill), for six specimen Ferns; Sir W. LAWSON, for six decorative foliage plants; Mrs. ALEX. ROSE, Richmond House, Dowanhill, Glasgow (gr. Mr. Jas. Templeton), for four decorative foliage plants; STEPHEN MITCHELL, Esq., Kippen (gr. Mr. C. Shaw), for four winter-flowering Begonias; and the Earl of HOME, K.T., for four pots of Nerines.

FRUIT.—In the class for a collection of eight dishes of Fruit, of eight distinct kinds, Lord ELPHINSTONE was awarded the 1st prize; 2nd, the Earl of WEMYSS. C. W. COWAN, Esq., was placed 1st, and Lord ELPHINSTONE 2nd, for four bunches of Grapes, of distinct varieties. Col. STEWART MURKENZIE OF SEAFORTH, Brahan

The best collection of six varieties of culinary Apples was shown by Col. GORDON, and the best six varieties of dessert Apples, four of each sort, by the Marquis of LANSDOWNE, K.G., Meikleour House, Perthshire (gr. Mr. J. Chisholm).

VEGETABLES.—For a collection of vegetables in nine distinct kinds, the 1st prize was won by the Earl of LAUDERDALE, Thirlestane Castle, Lauder (gr. Mr. R. Stuart). In the single dish classes, the principal prize-winners were:—R. M. PIRKINSON, Esq., St. Fort House, Fife (gr. Mr. Jas. J. Steward); W. H. DOBIE, Esq.; Sir DUNCAN E. HAY, Bart., Kerfield, Peebles (gr. Mr. S. Murray); the Earl of HOME; J. MCINTOSH, Esq., Lamancha House, Peebles (gr. Mr. J. Johnston); R. WIGHT, Esq., Costerton, Blackshields (gr. Mr. J. Scott); J. NEILSON, Esq., Mollance, Castle Douglas (gr. Mr. J. M. Stewart); Mrs. BREMNER, Edinburgh (gr. Mr. J. Macdonald); STEPHEN MITCHELL, Esq.; and Messrs. WM. CRAIG, Swinton, Berwickshire; C. PAGE, Liberton; A. BRYDON, Innerleithen; A. BELL, Douglas, Lanarkshire; J. PATTERSON,

Duns, for Primulas; and Mr. D. McLEOD, Chorlton-cum-Hardy, for Orchids.

Brass Medal were awarded to Messrs. DOBBIE & Co., Edinburgh, for Chrysanthemums; and JOHN FORBES, LTD., Hawick, for various plants.

ROYAL METEOROLOGICAL.

NOVEMBER 15.—The opening meeting of this Society, for the present session, was held on this date, at the Institution of Civil Engineers, Dr. H. N. DICKSON, president, in the chair.

Mr. C. HARDING read a paper on the abnormal weather of the past summer. He presented statistics showing the distribution of temperature, rainfall and sunshine week by week in the various districts of the British Isles, and also made a comparison of the results with the Greenwich records back to 1841. From the facts thus brought together, Mr. HARDING showed that, so far as temperature is concerned, the summer of 1911 was unique. The maximum temperature of 100° at Greenwich, on August 9,



FIG. 142. PREMIER EXHIBIT OF FIFTEEN VARIETIES OF JAPANESE CHRYSANTHEMUMS, EXHIBITED BY CAPTAIN STIRLING (GR. MR. THOS. LUND) AT THE EDINBURGH SHOW, AND AWARDED THE CUP OFFERED BY THE CITY OF EDINBURGH.

Castle, Canonbridge (gr. Mr. Wm. Campbell), excelled in the classes for two bunches of Grapes, one black and one white variety; and for two bunches of Muscat of Alexandria. W. MACKAY, Esq., showed the best two bunches of Black Alicante; Major THORBURN, the best two bunches of Gros Colman and single bunch of Lady Hutt; Lord ELPHINSTONE, the best two bunches of Lady Downes; and J. E. LAIDLAY, Esq., Dirlerton (gr. Mr. Jas. Law), the best single bunch of Appley Towers.

For 18 dishes of Apples grown in Scotland (not fewer than 12 varieties), the 1st prize was won by Col. GORDON. Threave House, Castle Douglas (gr. Mr. J. Duff); 2nd, Mr. R. G. SINCLAIR, Congalton, Drem.

For 18 varieties of Apples, ripe or unripe, Col. GORDON was again 1st, and the AMERICAN AMBASSADOR, Wrest Park, Bedfordshire (gr. Mr. G. McKinlay), 2nd. The principal prize-winners in the classes for Pears were the Earl of WEMYSS, Mr. SINCLAIR, A. M. S. FLETCHER, Esq., Saltoun Hall, East Lothian (gr. Mr. R. Pow); Rev. G. H. DAVENPORT, Foxley Hall, Hereford (gr. Mr. R. Currie).

Rutherford, Roxburghshire; G. SCOTT, Pencaitland, East Lothian; and D. PITT, Eccles, Kelsae. J. NEILSON, Esq., was 1st for five specimens of Cranston's Excelsior Onion grown in Scotland; and Mr. W. DOUGLAS, Easter Duddingston, Edinburgh, won the Silver Medal offered for the best 12 bunches of Leeks (14 to the bunch), as grown for market. This latter class was confined to Edinburgh market-growers.

NON-COMPETITIVE EXHIBITS.

Gold Medal were awarded to Messrs. STORRIE & STORRIE, Glencarse Nurseries, Perthshire, for flowers and fruit; SUTTON & SONS, Reading, for vegetables; W. WELLS & Co., Merstham, Surrey, for Chrysanthemums; and Wm. BROWN & Co., Edinburgh, for fruit.

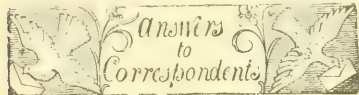
Silver-gilt Medals were awarded to Messrs. DICKSON & Co., Edinburgh, for Chrysanthemums and other flowers; YOUNG & Co., Hatherley, Cheltenham, for perpetual-flowering Carnations; and Wm. CURRIE & SON, Highgate, London, for perpetual-flowering Carnations.

Silver Medals were awarded to Dr. MacWATT,

is the highest temperature recorded in the British Isles since the establishment of comparable observations. The mean temperature for the summer was also higher than for any similar period during the last 70 years. The maximum temperature of 96° in July has only been slightly exceeded on two previous occasions, and the September temperature of 94° has not previously been equalled during that month. So many hot days during the summer have never before been recorded. Mr. HARDING further showed that the rainfall for the three summer months has only been smaller in three previous years during the period of 70 years, and also that the duration of bright sunshine was greater than in any previous summer since the introduction of sunshine recorders in 1861. As a consequence of the exceptional weather, the harvest was everywhere commenced at an earlier date than usual, and was quickly concluded, under the most favourable conditions. The effects of the drought, other than in relation to the water supply and vegetation, were very far reaching. Sports of all description were but little interfered with by the weather.

Obituary.

THOMAS PURVES.—The death of Mr. Thomas Purves, relative of Scotland, occurred on the 4th inst. at his home at Auburn, Victoria, Australia. Deceased was manager of the firm of Law, Somner and Co. for 13 years, and afterwards for 35 years of the firm of Adamson's, now Messrs. F. H. Brunning, Ltd.



••• The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

ASTERS: *Rouge*. Your seedling Asters are diseased, and should be watered with a solution of permanganate of potash at a strength of 1 ounce in 5 gallons of water. The fungus which is attacking the plants is present in the soil, which should be thoroughly soaked with one pint of formalin in 20 gallons of water, at least one fortnight before the seed is sown.

BEGONIA AND TOMATO: *H. W.* No disease is present on the foliage of your Begonias. The appearance of the plant suggests eelworm at the roots. For this disease there is no cure. Your best plan is to obtain fresh stock next season, also selecting the potting materials from a different source. The Tomatoes are affected with the fungus *Cladosporium fulvum*. Remove all dead and diseased leaves, and spray the plants with the Bordeaux mixture at half the usual strength. If flowers or fruits are present, it will be better to spray with liver of sulphur, using 1 ounce in 4 gallons of water.

CALLA DISEASED: *A. M. S.* A fungus is present at the root of your Calla, and was probably introduced in the leaf-soil. It will be well to water the soil at intervals of three days with sulphate of potash, using 1 ounce in 1 gallon of water.

CAMPANULA MEDIA CALYANTHEA: *T. C. L. Notts.* This is a biennial, and it is not uncommon for an occasional plant to miss flowering at its appointed season and grow on, increasing in strength for another year. All biennials are liable to do this in extraordinary seasons.

CARNATIONS DISEASED: *Malmesdon.* There is no disease present in your plants. The trouble is caused by some wrong cultural treatment.

ERECTOR OF A GLASSHOUSE: *L. H. F.* The glasshouse you contemplate erecting would cost about £55. This would include the providing and fixing of 37 pairs of rafters at 18 inches apart, the necessary glass of 21-ounce gauge; bedding same in best putty and securing on top with brass brads; painting the woodwork with two coats of paint before erection and one coat afterwards; fixing and tarring gutters; providing the necessary nails, screws and water joints for vents, latches for doors, gearing, and brass brads; for securing glass in position when bedded in putty. This sum also includes the payments for bricks, lime, sand and labour and two divisions to the house, including division doors. Seventy-five yards (225 feet) of 4-inch piping (two pipes on either side of the house, one above the other) would cost £8 8s. 9d.; four H pipes, with two valves in each, to regulate the circulation of hot water in flow and return pipes, would cost £7 10s.; at a cost of say, £1 5s.; a 4B Junior Robin Hood boiler, capable of heating 300 feet of 4-inch piping, £8 10s., totalling £54 19s. 9d. A No. 405 cast-iron White-Rose sectional boiler, capable of heating 350 feet of 4-inch piping, would cost £8 7s. 6d. Both these types of boilers are very efficient and economical. The cost of a lean-to structure of the same length would be about one-third less than the span. You cannot do better than to bed the glass in putty and secure it on top with brass nails and brads.

GARDENERS' NOTICE: A *Constant Reader*. It is usual for a head gardener to receive or give a month's notice on terminating an engagement; in the case of under-gardeners, a week's notice only is necessary.

GRAPES DISEASED: *Mespilus.* The Grapes you send are attacked by Botrytis disease. This fungus only attacks plants when they are covered with condensed moisture. Ventilate the house early in the morning and maintain drier conditions in the vinery.

NAMES OF FRUIT: *Lancashire.* **WINTER'S KITE.**—*H. A. R.* 1, Scarlet Pearmain; 2, New Hawthornden; 3, Minchull Crab; 4, Annie Elizabeth; 5, Lady Henniker; 6, Dumelow's Seedling (Wellington).—*W. H. H.* Pears decayed; 3, Northern Greening; 4, Beauty of Kent; 5, Mank's Codlin.—*Wick.* Brown Codlin.—*G. J. H.* 1, Chelmsford Wonder; 2, Hollandbury; 3 and 5, Lord Lennox; 4, Cackle Pippin; 6, King of the Pippins.—*Collier.* Beurré Sterckmans.—*S. Best.* Cox's Orange Pippin.—*Barnet.* 1, Hawthornden; 2, London Pippin; 3, Worcester Pearmain; 4, Ribston Pippin; 5, Keswick Codlin; 6, Cellini Pippin.

NAMES OF PLANTS: *H. E. Mendall.* **PEA.**—*M. O.* 1, Brassia maculata; 2, Sigmatostalix radicans; 3, Odontoglossum Wallisi; 4, Cattleya intermedia; 5, Pleione Wallichiana; 6, Polystachya pubescens.—*Anxious.* 1, Cestrum (Haborthamnus) Newellii; 2, Celsia cretica; 3, Gesnera (Nagelia), a garden form of *N. zebria*; 4, Ruellia Portellae.—*R. H. C.* *Elæagnus pungens medio-aurea.*

ORIGIN OF THE EARLY-FLOWERING STRAINS OF SWEET PEAS: *Market.* The three strains of early-flowering Sweet Peas are the Telemly (or Arkwright's), Zvolanek's, and Englemann's. In the *Sweet Pea Annual* for 1907, Rev. Edwin Arkwright, Telemly, Algiers, gives the following account of the origin of his strain:—"I have now, for several years, had Sweet Peas in bloom in my garden at Telemly, on the hill of Mustapha, above Algiers, from Christmas till May. The first of these early Sweet Peas was a sport from Blanche Ferry, an old-fashioned pink and white variety, hailing, I believe, from America. This particular Sweet Pea—Blanche Ferry—was always early at Algiers, that is to say, it flowered at the end of March; but about seven years ago a sport showed itself in my garden as early as February, and was promptly isolated from all others. The next year I had some plants flowering in January, and among them one red one, a cross, apparently, from Mars, on which a blossom or two had come out in May of the previous year. From these parents I have now 10 or 12 of the usual colours, ranging from white to purple, and including duplicates—or shall I say imitations—of Hon. Mrs. E. Kenyon, Jeannie Gordon, Lady Grisell Hamilton, Mars, Black Knight, &c., which begin to flower about Christmas-time, and last for five months." Mr. A. C. Zvolanek, of Bound Brook, New Jersey, is the originator of the Zvolanek strain, and the following account of it is given in the recent *Bulletin* of the Cornell University Department of Agriculture:—"It appears to be the result of a cross between an early-flowering plant, found among Lottie Eckford, and Blanche Ferry. The cross gave Christmas Pink, although, probably, not as we have it to-day, for, undoubtedly, it has been selected and improved. The cross was made some time previous to 1895, for Mr. Zvolanek says that he was able to send the first dozen blooms to market on January 1 of that year. The variety was introduced in 1899. The next winter-flowering variety was Miss Florence E. Denzer, a cross between Christmas Pink and Emily Henderson. Since the latter was a white sport from Blanche Ferry, it is evident how closely this winter type, is related to this standard American variety. By 1900, Mr. Zvolanek called attention to the fact that he had five varieties of the winter-flowering class. These pioneers were used to cross with the best out-door varieties. The results number over a hundred varieties, from which 30 have been considered of commercial importance, and have been introduced." Mr. C. Engelmann, of Saffron

Walden, Essex, gives the following account of his strain in the *Sweet Pea Annual* for 1907:—"It is nearly four years since some plants of Captain of the Blues sported with me, and gave winter-flowering varieties of quite distinct habit. Ordinary stocks sown in autumn will not bloom under glass until the following April, but the new-comers commence to bloom from six to ten weeks after seed sowing, and continue to form branches and produce flowers all through the winter. I have now winter-flowering representatives of such varieties as Dorothy Eckford, Lady Grisell Hamilton, and Miss Willmott, as well as a number of crosses between these and the ordinary type and Mount Blanc, so that almost all Sweet Pea colours are represented. In 1906 I sowed my winter-flowering varieties at the end of August and beginning of September, and the resulting plants commenced to flower in October, and were splendidly in bloom at the end of November and early in December, and they should continue to flower until the ordinary Sweet Peas come into flower."

PROTECTING BULBS FROM MICE: *S. A.* Place a circle of red lead on the surface of the ground after the bulbs have been planted. Another good plan is to break up some old bulbs of Fritillarias (Crown Imperial) and dibble small pieces around the groups of bulbs; mice object to the smell of the Crown Imperial. The red lead will also protect the bulbs from damage by birds.

PRUNING APPLES: *H. S. C.* If you mean that the main shoots of the young trees were not cut back sufficiently last year, so that they have formed fruit-buds on or near the ends, the most desirable course to pursue depends upon circumstances. If the main shoots are sturdy, and have sent out good extensions above the fruit-buds, they may be cut back above these buds, severely or otherwise, according to their vigour. If these are slender, or have not grown out well above the fruit-buds, cut back to dormant wood-buds below the fruit-buds. One or more of these dormant buds will be almost certain to produce a shoot.

ROMAN HYACINTHS: *W. P.* The roots of the bulbs have been destroyed by mites. Your best plan is to mix flowers of sulphur with the soil in which the bulbs are planted.

ROSES: *A. C.* If the plants are not growing well, the proper treatment will be to afford them better or more suitable soil after transplantation, which may be carried out at once. Read the frequent notes on Rose culture which appear under the heading "Rosary" and procure a copy of *Roses*, by H. R. Darlington (Present-Day Gardening series), price 2s. 9d., from our Publishing Department.

VINE BORDER: *W. P.* The directions for making a vine border were given in the issue for September 30, p. 250, but the quantity of old mortar and bones should be 1 cwt. of each to every five loads of loam.

WEED ON LAWN: *W. J. W.* The plant is *Prunella vulgaris* (Selfheal). Next spring top-dress the turf with a mixture of fine soil and some nitrogenous manure. Afterwards, at intervals, sprinkle a little sulphate of ammonia on the lawn. These dressings will cause the weeds to grow so luxuriantly as to crowd out the weeds.

WEeping OAK: *S. J. T.* The pendulous variety of the common Oak (*Quercus pedunculata*, var. *pendula*) is occasionally offered for sale by nurserymen, but good specimens of this tree are by no means common. There is an elegant example in the collection of Oaks at Kew Gardens. It is of little use sowing the acorns; it is possible that a young tree of more or less pendulous habit might be obtained, but this is very uncertain. The propagation of the weeping tree is effected by grafting on standards of the common Oak.

Communications Received.—J. Sadler (Thanks for 2s. contribution to the R.G.O.F. for P.G.B. 6-8). J. C. A. E. S. G. R. G. W. Engraving. A. H. J. G. C. D. H. J. C. York. T. A. W. Engraving. J. O. B. T. B. H. A. P. J. W. T. B. B. W. K. Anderson. H. S. H. S. T. W. P. H. H. W. W. P. R. H. W. J. R. J. G. H. H. W. A. P. R. H. H. G. R. C. H. E. H. C. H. P. E. H. J. E. R. L. P. S.

THE
Gardeners' Chronicle

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BACK TO THE HILLS.

I THE LEGNA.

THE distinct ridgeing south from the Maloja to the Italian lakes, and eastward to Garda, contains the Alps called those of Bergamo and Brescia. To these hills are endemic, *Saxifraga Vandelii*, *Campanula Raineri*, *Primula glaucescens*, and *Androsace Charnpetieri*. Nor is a rich show lacking on these mountains of brilliant but less especial treasures. Let us ascend a peak which towers above the Lake of Como and consists entirely of limestone.

The Legna rises behind Veralla, and all the first four hours of the climb are over a purgatorial track of cobble-stones. The Italian foothills of the Alps are hot and wooded. We pass through little perched village after village, huddling among groves of Chestnut; the steep copy slopes are a-wave with the scented lilac tails of *Gymnadenia*, and the Orange Lily climbs now and then like a flame amid the brushwood. After Igone, however, the path mounts rapidly towards the still invisible mountain, and in the west begins to unfold the panorama of the Monte Rosa chain. In the twilight of the cope are relics of *Viola biflora*, and the *Anemones* *Hepatica* and *ranunculoides*; *Viola pinnata* occurs in more open places by the path, and in the bays *Anthericum liliatum* is passing out of the heights.

The Legna looms into sight at last, beyond what looks a little plain. Not at all: our way soars up abruptly to the right, and comes out at last on the brink of a fearful precipice. In place of a plain, there lies below us an abyssal profundity: round by a vast amphitheatre of cliffs runs the track that leads at last to the crest of the Legna. These rocks are rich, however, in treasures. *Bugthidium* species, many fine

and flourishes from the cypresses; *Cytisus* depends; *Saxifraga Hostii* hangs in mats of silver starfish. In cultivation I do not believe this plant is common. It is a true species, possibly, but may be described as a much-glorified *Aizoon*. Its spikes are tall and very thinly clad; its flowers are big and white, though not with that celestial whiteness that you get among the cousinhood of *Saxifraga linguata*. It is, in cultivation, as easy and vigorous a thriver as most of its indispensable section.

In one more moment begins the reign of Campanula Raineri. Thenceforth, to within measurable distance of the summit, Archduke Rainer's Bell possesses all the crevices of the cliffs. This is an essentially and vehemently saxatile plant; it appears ramifying insatiably up and down the flaws and chinks of limestone precipices and boulders. When I was on the Legna, its immense and stemless cups of blue had not even begun to think about appearing: I have a suspicion, though, that neither at home, nor in nature, is it always very generous in their production. I may, however, have been completely misled in this by the apparent frailty of the tiny grey growths that C. Raineri throws up here, there, and everywhere, as the cleavages of the cliffs permit. As you continue along the track all the rocks are full of it. Phyteuma cosmosum, however, which one might have expected to abound, seeing that it begins at the level of the lake itself, is nowhere now to be seen. But from this point onwards to the hut, universal among the more open spaces of the scrub is Primula glaucescens. I found the flowers lingering only at the utmost level in the bushes near the hut.

itself : a storm had damaged even these. Yet, from all my experience, I think I may fairly say that *P. glaucescens*, easy and thrifty as it is, has not the full resplendent beauty of its cousins, *P. Clusiana* and *P. spectabilis*. Its flowers are in shape a trifle ragged, in texture a trifle thin, in colour a trifle washy. But this, of course, only by comparison with the solid, glowing glory of *P. spectabilis*, and the fringed splendour of *P. Clusiana*.

Another thing that disappoints one here is *Gentiana verna*, which begins to occur as you climb towards the hut. It is so very scattered and sparse in flower, so screwed and starchy and ungenuous in outline. But, indeed, *G. verna* is a variable plant, and by no means always can you count on having the clumped, dense-flowered, broad-starred form that covers Mont Cenis, and is found even on Monte Bianco, and on the Schlern. Often and often in the Alps does one come on whole tracts of country where the prevailing *G. verna* is as mean and poor as the worst Oberland forms of *G. acutis*. The *Gentiana* abounds near the hut, and so does *Ranunculus alpestris*; but the climb continues high and far towards the mountain, over tumbles of scree, and up at last over shelves of cliff and slopes of shingle. In fine, pebbly banks glows an abundance of *Thlaspi rotundifolium*, in a well-habited form: wedged into crannies glows a lovely little *Primula*, which, by every rule, ought certainly to be *P. aenensis* rather than the *P. hirsuta* that it more resembles. *Buphtalmum* and *Phyteuma comosum* and *Potentilla nitida* flaunt on the cliffs; and up in the gullies and silted hollows *Allium pedemontanum* is pushing by the million. And then, at last, high up on a vast precipice, one has one's first sight of *Saxifraga Vandellii*.

Saxifraga Vandellii inhabits only the tightest crevices of the hardest, sheerest, and most awful limestone cliffs in the range. Here it forms dense, spiny domes, often a foot across, or more, from which hang out the clustered flower-heads of pure white. It is a wonderful plant to see : a most terrible plant to collect. And it has given

To be told my notions of it by proving to be as intensely calcareous in its likings as any other of its section. It seems, however, to appreciate the full glare of the sun on those gaunt white walls, in a manner which would certainly not be followed by either *Burseria* or *diapsenoides*. It is the special sovereign of the Bergamask Alps, and, after this, there is but little to tell of what I saw on the *Legna*, unless it be of Monte Rosa at sundown, lying far away up in the sky, a many-pointed island of pale sapphire, floating above range upon range of level grey cloud, beneath which, down in the depths, lie all the mountains of earth, in fold over fold of darkness. At rare intervals, out of the undiscoverable blueness below, the sound of an ancient bell would rise into the velvet silence.

MONTE BALDO.

The famous mountain where everything grows is, in reality, a vast long rampart thrown up between the whole length of Garda, and the valley of the Adige, looking from some points rather like the work of some giant spade. But from the walls of Verona, seen end on, it is the central-pillar of heaven. Monte Baldo is not easy of access; accommodation is weak upon its slopes. From Malcesine, on the lake, the Monte Altissimo may be ascended, on the southern face of which dwell ancient wide masses of *Saxifraga tombeanensis*; but between Altissimo and the rest of the ridge intervenes a very deep gulf called the Bocca di Navene, which makes it quite impossible to explore the whole mountain from any one point. The best thing to do, perhaps, is to go up from Verona to Caprino on the Adige side, and thence drive to Ferrara di Baldo, a tiny hamlet on the very slope of Baldo, with a town-hall big enough for Brighton.

Round Ferrara are cups full of *Anemone ranunculoides* in especial form, and the Orange Lily grows among the hay like Poppies in an English cornfield, and everywhere among the stones and open screes are pushing the glowing butterflies of *Cyclamen europeum*. Straight up the enormous grassy wall of the mountain they go the track. At first there is brushwood, with here and there a little bush of *Daphne spinosa* on some worn limestone boulder, and *Paeonies* flaunting great shell-pink blossoms in the shadow of the cliffs, among *Rosa alpina*. Crossing a little water-course we now emerge on to the long, bare slope of Baldo, a pitiless, interminable toil. The grass is thick with all the expected flowers, with here and there a strayed colony of *Primula spectabilis* passing into seed. Gradually one labours towards the ridge above, which at every step seems higher and further. Gentians begin to gleam in the grass, *Aster alpinus*, and *Linum austriacum*; but I missed *Campanula alpina*, if it be indeed said truly to make a very rare occurrence here in the Val Fredda above Ferrara. At last, however, the ridge draws nearer; *Senecio spatulatus* stands boldly, not to say coarsely, up among the grasses, with flannel-grey leaves, and clustered heads of yellow; richly-coloured *Orchises* emerge, and then the ground is blotched with waxy-pink patches among the Gentians, of *Daphne Cneorum*—a sight, indeed, for sore eyes that have so long been vexed by the poor flowers and dim drowsiness of *Daphne striata*, so universal in these southern ranges. *D. Cneorum*, on the contrary, ranks next to the unrivalled *D. rupestris*, and indeed its generous habit and ample blossom make it even more important to the ordinary gardener (if he can grow it). Its rich heads of fleshy-pink, pure and warm, lie like fragrant little trusses of *Bouvardia* here amid the short, brown turf of the alpine ridges. But who shall dare attempt the collecting of *D. Cneorum*?

We are on the ridge: we are over on the other side. Six thousand feet down lies Garda, like a floor of solid turquoise, and here the turf is

green and white, scattered densely with *Gentian montanum*, and the *Gentiana verna* and *G. Clusii*. Half-a-mile or more of this, and then, a little higher, among the rest, begins *Ranunculus aconitifolius*; a little further *R. anemoneoides* *Kernerianus* joins in, *Primula spectabilis* follows immediately, *P. Auricula* hangs from little ledges of cliff, and then among these all, and the glowing azure trumpets of *Gentiana Clusii*, the whole grassy ridge of Baldo, for many a mile, is a silver lawn of *Geranium argenteum*, densely bedewed with its enormous, pale-pink flowers.

Ranunculus Kernerianus is a very rare and special form, appressed to earth, frail and exquisite, with big *Marguerite*-like flowers of a rather musty, mauve-white. It covers the hard turf of Baldo, much more precious, and hardly less beautiful, than the unsurpassable *R. alpestris*. The *Primula*, too, is a revelation of loveliness, though it has not here the extra-

comosum darkly flaunts, and *Primula Auricula* and *P. spectabilis* peer out; with *Ranunculus alpestris* and *Saxifraga aizoon*, from between the flowery tussocks of *Rhodothamnus*. *Thlaspi rotundifolium* haunts the shingle-slides, and on the stony ridge itself the *Rhodothamnus* is at its loveliest, with *Saxifraga cæsia*. *Gentiana Clusii* and, on the bare eminences themselves, fine tufts of *Petrocallis pyrenaica*. Can this, then, be the "*Pulmonaria lichenifolia*" which *Clusius* reports from Baldo? If not, what is? What plant is like a lichen—and also like a *Pulmonaria*? What—what combines the two qualities—what but *Eritrichium*? But when was this ever seen on limestone? I saw no trace of it, and expected none. And I also failed to find any sign of *Saxifraga tombeanaensis*. As for the view, on one side of Baldo lies Garda and the Adamello, and on the other, up north, all the Dolomites; but the vast, lonely

YELDHALL MANOR, TWYFORD.

YELDHALL MANOR, the residence of P. F. Tuckett, Esq., is situated about three miles from Twyford, and two miles from the popular riverside village of Wargrave. There is a gradual rise from the river Thames to the Manor, and immediately behind the house is Bowsey Hill, the summit of which is said to be the highest point in Berkshire. Thence is obtained a fine view of the surrounding country, and particularly in the direction of Reading. Since Mr. Tuckett took up his residence at Yeldhall some 16 years ago, many improvements have been made in the gardens and pleasure grounds, in which some of the features are Roses, flowering trees and shrubs, Conifers, and a wild garden. Alterations and improvements are still in course of progress, including the making of a woodland walk. In front of the residence (see fig. 158) are two terraces, and on either side of the steps leading from one terrace to the other are large plants of *Choisya ternata*, the Mexican Orange Flower. At one end is a conservatory and Rose temple. The former structure contains several very interesting plants, and at the time of my visit *Eriobotrya japonica* was carrying numbers of its pale-orange-coloured fruits; plants of *Phyllocactus* were in flower, also *Dimorphanthea aurantiaca*, *Schizanthus*, and *Viscaria* (*Lychnis*) *cardinalis*. The *Viscaria* is grown from seed sown in September, the plants being accommodated in a cold frame till they commence to flower, when, for several weeks, they provide a bright display. *Alonsoas* are also cultivated in considerable numbers. The Rose temple is covered with all the best varieties of Rambler and Wichuraiana Roses. *Crimson Rambler* and *Thalia* were exceptionally fine when I saw them. Near by this temple are two trees of the weeping *Prunus* (*Cerasus*) *sinensis pendula*.

A winding pathway leads to the wild garden, which is still in the making. Beside large quantities of bulbs, Irises, Cyclamens, Gunneras, and Rambling Roses have been associated with the natural vegetation, which includes many handsome trees. The Irises include those of the German, English, Spanish, and *Kæmpferi* types, the last-named forming a charming feature in themselves. There is a large pond in this portion of the grounds, half of which is used for bathing, the remainder being planted with Water Lilies, yellow Irises lining the banks. A background of *Rhododendrons* forms a pleasing setting to the water plants. Among the other improvements made by Mr. Tuckett is a carriage drive nearly one mile in length, and planted on either side with bold groups of shrubs, such as *Rhododendrons*, *Deutzias*, *Spiræas*, also various Conifers. The coloured foliage of a group of scarlet Oaks is conspicuous in autumn in this part of the grounds. On the north side of the mansion is a maze, some 2½ acres in extent, which was planted 15 years ago.

On the east side of the house is a rosary and the kitchen garden. In fig. 160 is shown the gardener's cottage and a specimen of the free-flowering *Pyrus floribunda*. Not far distant from this spot are two examples of the quaint *Sequoia gigantea pendula*, fine plants of the Strawberry Tree, *Arbutus Unedo*, and clumps of the Portugal Laurel, these shrubs being some 30 feet high.

Berberis, especially *B. Darwinii*, with its orange-yellow sprays, and the popular *B. stenophylla*, are largely planted in the shrubberies, while the bronze foliage of *Prunus Pissardi* shows up well among the green shrubs. There are also many Conifers, including *Thuya Lobbi*, *Sequoia gigantea* (*Wellingtonia*), *Pinus excelsa* (*Bhotan Pine*), *Cedrus atlantica glauca*, and *Cupressus Lawsoniana*. William Allen Richardson Roses are trained to stout poles at intervals along the winding paths: this variety being a favourite at Yeldhall. The Rose garden



FIG. 158.—YELDHALL MANOR, TWYFORD.

ordinary matted profusion and lushness of splendour that it shows on *Rocca Longa*. Here it forms single crowns only, and sometimes perks from rocks and gets elongate, till older botanists mistook it here for *P. carnioleica*. But its flowers are always a joy—so ample of outline, so well-liking in their solid texture, so refulgent in their brilliant, white-eyed rosiness. "*Spectabilis*" indeed! As for the *Geranium*, delicately charming though it be in all our gardens, with its contrasts of silver and pink, yet one has no idea of its full beauty till one has seen it on Baldo, densely neat and tight and dwarf, with outstanding wide rosy stars upon its close, fine tufts of silver-grey, as compressed, almost, as those of *Potentilla nitida*. In gardens its foliage always grows taller, and sprays out, though the size, brilliancy, and profusion of its blossom are in no way really diminished.

Along this multi-coloured lawn one roams the ridge of Baldo, until the track to the Hut of the Telegrafo leads along under the Eastern Cliffs. For Baldo, earth-trench though it may look from afar, is in reality profuse in most prodigious precipices, and each of the eight or ten peaks that compose its ridge is set about with grim combs and cliffs, and shingle-slopes of white limestone. In the sheer walls *Potentilla nitida* hangs in sheets, a galaxy of warm-pink *Dois*. Roses on a firmament of silver, *Phyteuma*

ridges of Baldo—at all events its peaks—are very rarely free, for long, from a veil of cloud. *Reginald Farrer.*

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

ERICA TETRALIX × VAGANS.

UNDER the name *E. cinerea* × *vagans* this interesting hybrid Heath was described last year in the *Journal of Botany* by Mr. F. H. Davey. A single plant having been found by the renowned horticulturist Mr. P. D. Williams, of Llanarth, Cornwall, on the occasion of the International Phytogeographical excursion, Dr. Schroeter, Dr. Graebner, and the writer were shown the original plant in situ. This confirmed my first impression of the Heath, which Mr. Williams had kindly brought to show us at the Lizard, that one of the parents was *Tetralix* not *cinerea*, since the glandular hairs on it must have been derived from the former species, with which it grew. It is greatly to be hoped that Mr. Williams will be able to propagate this new hybrid, which should bear his name × *Erica Williamsii*. Both the foreign scientists agreed to the determination. *G. Claridge Druce.*

centres upwards of 400 plants of the best varieties. The portion of the grounds is enclosed with a front lodge of the Common Yeomanry side, and monthly Roses on the other.

In the kitchen garden the Loganberry grows luxuriantly, and produces large crops of its luscious berries. A range of glasshouses contains a small collection of Orchids, including finely-developed plants of *Ada aurantiaca*, *Cypripediums*, and *Calanthes*. One division is devoted to the cultivation of plants for furnishing the conservatory and greenhouse.

Mr. and Mrs. Tuckett take a keen personal interest in their beautiful gardens, and Mr. George, the gardener, has every reason to be proud of the excellent condition of all the de-

THE PAST SEASON IN THE SOUTH-WEST.

In the spring *Lepospermum bullatum* was smothered in buds, and a fine sight was anticipated when the blossoms expanded. Owing, however, to the extreme drought not a single flower opened, but all withered and turned brown in the bud state. The bush is now completely brown, and will probably not recover. Another shrub that, as regards its flowering, suffered badly from the drought was *Tricuspidaria dependens*. It is held to be a very shy bloomer, but this year the bush carried over 50 flowers. Not one of them, however, was typical, the little, shrivelled white flowers being about half an inch in length instead of over an inch, and from a flowering

cardinalis elegans, formosissimus, Peach Blossom, Rose Queen, Queen Wilhelmina, Ackermaria, Red Prince, and Crimson Queen all flowering profusely. *Gladiolus Saundersii* generally so excellent in its flowering, was a failure, the flowers withering almost as soon as they opened. The little *Gladiolus vinulus*, which precedes *The Duke* by about 10 days, was not nearly so good, its pure white flowers having rich carmine markings on the lower petals.

Convolvulus mauritanicus was a charming sight drooping over a rock covered with a profusion of soft, lavender-blue blossoms, and the rare *Convolvulus turguriorum* from New Zealand bore many pure-white flowers about 2 inches across, and ascended a wall to a height of 12 feet. The heart-shaped leaves measure from



FIG. 151. VIEW FROM ONE OF THE TERRACES AT YILLDELL MANOR.

HARDY FLOWER BORDER.

YUCCA RECURVA GLAUCA.

A PLANT of this *Yucca* in these gardens is remarkably late in flowering. At the date of writing this note (November 6) it has seven fine flower-spikes, chiefly in the bud state. The largest inflorescence is just unfolding its basal flowers. In another week, should mild weather prevail, the plant will be in its full beauty. We have many of these handsome plants in various parts of the pleasure grounds, and I have particularly noticed that the finest plants are those exposed to the south and south-west, where they get the salt-laden air from the Channel. Arthur K. Turrell, *Orchard Park Gardens, Ipswich*.

better known *Tricuspidaria lanceolata* (*Crinodendron Hookeri*) did not appear to suffer from the dryness, and bore typical flowers. *Ostrowskia magnifica* was very fine, though rather under 5 feet in height against 7 feet in Yorkshire. Many of the flowers, however, did not open fully, probably owing to the drought, but the plant set seed which was collected. *Aristea Ecklonii* bore its little starry, blue flowers under a south wall, but for beauty it cannot compare with its relative *Witsenia corymbosa*, which is not yet in bloom, though it is carrying many unexpanded flower-buds. The *Dropmore Anchusa* was a splendid sight, a group 7 feet in height and 6 feet through bore a mass of bright blue. The early *Gladioli* were very fine, and evidently appreciated the hot weather, *Blushing Bride*, *Saumarez*, *Lucretia*,

$\frac{1}{2}$ inch to 1 inch in diameter, and are borne on very fine, drooping side-shoots that fall down from the main growths and completely hide the wall with a veil of green. *Watsonia Ardeni* flowered well this year sending up a dozen flower-spikes, but neither *W. coccinea* nor *W. rosea* bloomed. *Tacsonia mixta* (*quintensis*), which has made enormous growth, commenced to flower at the end of June; the flowers are of a soft, flesh-pink colour and about 4 inches across. It has overtopped a 12-foot wall and is now running on 2 feet 6 inches of wire netting strained above the top. A self-sown seedling of *Solanum aviculare*, which appeared last spring, has developed prodigiously, and is now 10 feet high and almost as much through. It is carrying numerous clusters of violet-purple, golden-eyed flowers, and hundreds of bunches of fruit. *Clethra arborea* was a

splendid sight in August, bearing over 150 branching flower-sprays set with white Lily-of-the-Valley-like blossoms. It is as yet under 6 feet in height. *Philadelphus mexicanus* is quite the prettiest of the so-called *Syringas*. It is a tender shrub, and rarely met with. The cup-shaped flowers are white, and are rather over an inch across. *Mimulus cardinalis* suffered much from the drought, and instead of being nearly 3 feet, was only a foot in height. The plants of *Gerbera Jamesonii*, though looking very healthy, have not flowered this year. For many seasons *Cyrtanthus McKennii* flowered in this garden, but then unaccountably died out. It has now been replaced by the yellow-flowered *C. lutescens*, which has borne blooms this year. *Incarvillea Delavayi* blossomed freely, but *I. grandiflora* has perished.

are bright blue, one and half an inch in diameter. It has been in bloom from the end of July to the present time, and is very attractive. Next to it is a strong plant of *Arctotis aureola*, which has to be cut back periodically to give it room. For the past two years, *Zephyranthes Atamasco* has not borne a single flower, but this season it has bloomed profusely, as has the smaller *Z. candida*. Early in September *Nerine Fothergillii* major threw up 12 fine flower-spikes and *N. Bowdenii* is showing seven, but *N. flexuosa alba* has not bloomed. The great clumps of *Agapanthus* have been a splendid sight, both the evergreen blue and white and the deciduous white having flowered to perfection. *Dierama pulcherrimum*, with its fairy flower-wands, has been very beautiful, the pure-white variety being one of the loveliest flowers in existence. The type,

for at Kew, where they succeed to perfection, they get no sun until after five o'clock. *Cypripedium spectabile*, mentioned in the last article as being healthy, flowered finely, and *Calochortus venustus* Vesta bore numbers of its beautifully-coloured blossoms. *Rehmannia angulata*, from last year's self-sown seedlings, bloomed well, and the pretty little shrub *Helianthemum algarvense* carried numbers of its yellow, maroon-blotched flowers. *Androsace lanuginosa*, covering a space of 4 feet square, blossomed fairly well, but not as profusely as in former seasons, and *Cypella Herbertii* had but few flowers. *Lonicera Hildebrandiana*, on a north-west wall, as usual bloomed abundantly, its great flowers, 6 inches in length and 5 inches across the mouth, being deliciously scented. *Hedychium Gardnerianum* threw up a dozen fine flower-spikes of delicately-perfumed



FIG. 160.—YILLPHAIL MANOR: YUCCA FLORICUNDA FLOWERING ON THE AWN.

(See p. 388.)

Crassula coccinea, on an elevated site, made a splendid show with a couple of dozen of its flat, crimson flower-heads, and the scarlet-flowered *Bouvardia triphylla* was bright for some weeks, and made an exceedingly brilliant spot in the border; the semi-double *B. Alfred Neuner* also flowered well. The New Zealand *Arthropodium cirratum*, which has been flowerless for three years, bloomed finely this summer. It is almost impossible to save it from the attacks of slugs and snails, which revel in its succulent foliage and, unless destroyed, soon ruin its appearance. A pretty plant, that was given to me two years ago, is *Ceratostigma Polhillii*. It is not mentioned in any horticultural dictionary. It has formed a little shrub about a foot high and 2 feet through, with very slender branches and lanceolate leaves stained with crimson, an inch in length. The starchy, five-petalled flowers

with its somewhat magenta-coloured blossoms, is not grown, only the white and pale-flesh varieties being cultivated. Several florists' varieties of *Abutilon* have flowered well in some gardens, and *A. vexillarium* was bright through the month of July, with its crimson and yellow brown-stained blossoms, whilst early in June *A. vitifolium* bore its large lavender and white flowers in abundance. After it has reached a height of about 20 feet, it usually dies. *Calceolaria integrifolia*, a very common plant here, was a sheet of yellow in July, and is still bearing a fair quantity of flowers. The New Zealand *Forget-me-not*, *Myosotidium nobile*, has flowered, but not so well as usual, as it delights in moisture, and this dry summer has been against it. *Celmisia coriacea* has flowered well, but quite a dozen of these plants have been lost here, probably owing to their being in too sunny a spot,

pale-yellow blossoms. In August, *Mandevilla suaveolens* was covered with white flower-clusters, the individual blooms were nearly 3 inches across, and as many as seven carried in a single cluster. *Trachelospermum jasminoides* has also blossomed well against a wall where *Cassia corymbosa* will produce its yellow flower-heads until Christmas. *Leonotis Leonurus* has been a splendid sight, a shrub trained against a wall 7 feet high and as much across having been covered with countless large, orange-scarlet whorls of flower. *Gladiolus primulinus*, from the Victoria Falls, where it is ever drenched by falling spray, perfected, with the help of continuous waterings, a 3-foot-high spike of yellow flowers. The three *Æthionemas*, *persicum*, *pulchellum*, and *grandiflorum*, have been masses of soft, pink flowers, and the white *Sisyrinchium iridifolium* and the blue *S. chilense* and *bellum* have bloomed

finely, while *Iris gracilipes* flowered very freely and has increased greatly in size. In a neighbouring garden, *Bignonia speciosa*, from Uruguay, has produced its long, trumpet-shaped, wide-mouthed, lavender-coloured flowers against a south wall, and the rare, Mexican *Inga pulcherrima* has borne its scarlet flowers resembling a short blossom of a *Callistemon*. Wyndham F.

PHOSPHATIC MANURES.

SOME REASONS FOR APPLYING EARLY.

ALTHOUGH the past season has not been a very exhausting one for the soil, especially as regards phosphates, yet in highly-cultivated gardens there will be need to replenish the stock. Many will be now preparing for the autumn and winter, and the question when to apply manures other than farmyard manure will arise. As a general rule most of the nitrogen will be given in the spring or early summer on account of the ease with which it is washed out of the soil. To a lesser degree the same applies to potash, as for garden purposes the purified potassic manures, such as sulphate and chloride of potash, are usually made use of, together with wood ashes. These do not contain magnesium compounds or salt which are to render them injurious, and may therefore be applied just previous to planting. With phosphates the case is somewhat different, excepting perhaps with the water soluble phosphate in superphosphate and dissolved bones. To begin with, provided there is a sufficiency of calcium carbonate in the soil, practically all the phosphate will remain in the first 9 inches of soil for an indefinite period. Again, except in the case of superphosphate, the phosphate has to be mechanically mixed with the soil before it can be of use to the plant. This takes some time, even with the thorough methods of garden cultivation. Perhaps an even more important reason why the effect of a phosphatic manure is not shown in the first season is to be found in the mode of circulation of the phosphoric acid. Phosphate, which has been applied to the soil in an unavailable form, has two chief means of being dissolved, namely by the excretions from the rootlets of the plants, believed to be chiefly carbon dioxide, and by carbon dioxide, liberated by the decay of organic materials, and dissolved in the soil water. That which is rendered soluble by the roots themselves is doubtless of immediate use to the plant, but it must be remembered that, unless applied early, the phosphate has not had time to become mixed with the soil, and also that the roots come in contact with a comparatively small area of the soil particles. In the case of the phosphates dissolved by the soil water a small portion may be of use to the plant, but far the greater part is seized upon by the immense numbers of bacteria in the soil and built up into their own bodies. The phosphate is thus distributed very completely through the soil, but is unavailable to the plant until the bacteria have died and decomposed. When this has taken place very small particles are distributed throughout the soil and can then be easily dissolved by root excretions.

The question is sometimes asked, shall I add superphosphate to the stable or farmyard manure in order that the sulphuric acid may fix the ammonia produced by the decomposition of the organic matter? To this we answer No. Firstly, because it has been amply demonstrated that unless the proportion of phosphate is very large, say, 2.4 lb. per day per animal, the fixing effect on the ammonia is very small. Secondly, all organic manures are swarming with bacteria, which are engaged in decomposing them and producing carbon dioxide as one of their by-products. Hence the phosphate is dissolved, but this is of no use to the plant, as by the time the manure reaches the soil all the phosphate will be

locked up in the bacteria and they will have had the opportunity of depositing it in the soil particles.

In applying organic manures and phosphates, what process is therefore to be adopted? At present many will be dressing the garden with stable or farmyard manure, and when this has been spread on the soil it is advantageous to sow the phosphate, such as basic slag, basic superphosphate, bone ash, bone meal (steamed), so that, by digging in, the two will be well mixed. The rotting of the one will tend to dissolve the other, and the soluble parts will be taken up by bacteria and distributed through the soil ready for the spring and summer following. Some have gone so far as to say that the best effects of phosphates are not seen until the second season. To a very large extent fineness of division is the chief factor in rendering a manure available, but American experiments have proved that even the "floated" phosphate, made by grinding steamed bones or mineral phosphate very finely, comes only slowly into use. The name "floated or floats" arises from the fact that the impalpable powder will float when thrown on water. The coming season bids fair to be an expensive one for bones, and the same may be said for basic superphosphate. Therefore for present use a good grade basic slag is as cheap as anything and has the additional advantage of tending to counteract the acidity, due to want of lime, which is so common in garden soils.

ISOPYRUM GRANDIFLORUM.

(See Supplementary Illustration.)

THE genus *Isopyrum* includes about 31 known species, fully one-third being indigenous to China, and inhabiting the mountainous and more or less Alpine regions of the north and west of the country. Of these species the most widely distributed, and probably the most beautiful, is *I. grandiflorum*, Fisch (see Supplementary Illustration). In Western and Northern Yunnan it is very local in its distribution, and, even where found, not over abundant. But in suitable habitats and in a fairly moist season I do not know any rock plant which excels it.

On a few spots on the eastern flank of the Liching Range, at an elevation of about 14,000 feet, many of the most precipitous limestone cliffs, otherwise barren of vegetation, are adorned with *I. grandiflorum*, and once seen in its full beauty in such a situation, with its delicately-cut glaucous foliage and gracefully pendulous lavender-blue flowers backed by the rugged grey of the limestone, it is not readily forgotten.

The plants are deeply rooted in the fissures of the rocks, and branching over the surface form compact and symmetrically-shaped cushions of 1 foot to 2 feet or more in diameter. Many of those I saw, whilst collecting for Messrs. Bees, carried close upon 100 blooms, each 1 inch to 1½ inch in diameter when fully expanded. The specimen shown in the supplement is an abnormal one, but it bears 94 flowers. In most instances, however, the largest and most floriferous specimens were far out of reach, fixed in the crevices of perpendicular or overhanging cliffs, and on the flanks of inaccessible and slippery chimneys. It was only with the greatest difficulty and not a little danger that I secured the photograph.

The species seems to delight in a northern exposure and comparative shade, and it can easily put up with an abundance of wind and moisture. The plant is of very slow growth, and it is therefore a most difficult matter to estimate what might be the age of the largest specimens. The foliage is finely dissected, and has a beautiful glaucous blue tint, such as is found in some of the highest Alpine forms of *Corydalis*. The flowers are generally solitary, 1 inch to 1½ inch in diameter, of a rich shade of lavender-blue,

with bright, orange-coloured stamens; they are borne in very slender pedicels of 2 in. to 3 inches in length, sufficient to carry them well beyond the compact surface of foliage. The flowers are produced in June and July.

SCOTLAND.

EDINBURGH OPEN SPACES.

A good work is being done in Edinburgh by the committee of the Outlook Tower, which has in hand the work of securing and laying out gardens in the smaller open spaces in the old town of Edinburgh. In three years the committee has been able to lay out no fewer than nine gardens in the short distance between the Grassmarket and the Canongate.

NEWTON STEWART FLOWER SHOW.

THE Union of the Horticultural and Agricultural Societies which held their shows in Newton Stewart, Galloway, not having proved satisfactory, the report of a special committee appointed to consider the question advocated the dissolution of the union. It seems that a balance left from a bazaar in aid of the funds has been expended, and that there is a present debit balance of about £30, the society having lost about £80 in all. The proposal to adopt the report was carried unanimously, but it is anticipated that the horticulturists of the district will re-establish their show, which was for a long time the leading show in the south-west of Scotland.

THE ABERDEEN COLLEGE GARDENS.

THE experimental gardens of the Aberdeen and North of Scotland College of Agriculture have this season served as object lessons for school teachers, many of whom have had hitherto but few opportunities of becoming acquainted with gardening practice. The teachers receive lessons in horticulture, and the gardens also serve the purpose of showing by experiment the effects of such factors as deep and shallow sowing, the depth at which to plant bulbs and tubers, and other points of value. Instructions in pruning and in the cultivation of garden crops is also conveyed by means of practice, as well as by verbal teaching. The gardens are under the charge of Mr. R. M. Clark, who is well qualified for their supervision. A considerable space has been occupied by lots to show the effects of deep or shallow sowing, large versus small seeds, the best distances for planting and sowing, the different yields of certain stocks of vegetables, &c.; in brief, the consideration of as many as possible of the problems which confront the gardener. In addition to vegetables, flowers are also cultivated, and a considerable section of the grounds is occupied in showing how these can be best cultivated and pruned, while annuals and perennials of various kinds are included in the experiments which are being made in this skilfully-ordered garden, which is certain to have a beneficial influence on horticulture in the North of Scotland.

TREES AND SHRUBS.

VERONICA VEITCHII.

THIS shrubby hybrid, which has, on several occasions, been exhibited at the Horticultural Hall by Messrs. R. Veitch & Son, Exeter, is quite the finest blue-flowered *Veronica* I have seen. Hitherto I had always considered that the pink-flowered sorts were finer than the blues, but now the advantage has been reversed. Unfortunately, these beautiful shrubs cannot be grown in the neighbourhood of London, or they would quickly become popular, and receive deserved recognition. In the western portions of the kingdom, where such shrubs luxuriate, the plant will undoubtedly find many admirers.

CARBON-DIOXIDE AS A PLANT-FOOD.

MR. ANDERSEN'S article (see p. 349), describing his preparations for growing plants in a greenhouse, in air enriched with carbon-dioxide, is of importance, because such experiments have never before been carried out with proper ventilation in a current of air, as he proposes to do them.

While waiting for his results, it may interest your readers to hear how far this matter has been carried already by the researches of scientific investigators.

Putting aside the earliest discordant results, we need only relate the experiments of Horace Brown and of Demoussy.

Horace Brown worked in a double glasshouse at Kew, and kept one-half of it enriched with carbon-dioxide, so that it contained by day $\frac{3}{4}$ times as much as the outside air, while the other half was enriched to 200 times the normal (i.e., 6 per cent.). The houses had to be kept closed by day to prevent the escape of the carbon-dioxide, and they were only opened for ventilation at night. To prevent excessive heating by the sun, the glass was whitewashed, which must have diminished also the illumination.

Selected plants were grown for about two months, May-July. In these conditions Cucurbits, Impatiens, Nicotiana, Begonia, Fuchsia, &c., all showed the same result. Instead of growing more, they grew less than control plants cultivated under ordinary conditions, and not one of the individuals ever bore a flower. Horace Brown concluded that plants are so closely "tuned" to flourish in the existing concentration of carbon-dioxide in the air (0.03 per cent.), that a small increase is enough to completely upset their balance and produce injurious results.

Demoussy, a little later, published several short accounts of his own experiments.† He attributed Horace Brown's results to acid impurities in the carbon-dioxide used, and found also the same effects when he used carbon-dioxide prepared by the action of hydrochloric acid on chalk. When he used really pure carbon-dioxide, as obtained by fermentation of manure, by heating sodium bicarbonate, or from water saturated with this gas, he got positive results of increased growth. He did not work on so large a scale as Horace Brown, but kept his plants under large bell jars or frames. Here, again, the plant had to be kept shut in by day to conserve the carbon-dioxide, and consequently they could not be exposed to direct sun. In his final experiments he raised the content of carbon-dioxide to about five times the normal, during the day, and opened the vessel for ventilation every night. After two months of this treatment he found an average increase of fresh plant-weight, about 60 per cent. greater than in control plants in ordinary air. It is interesting to note that different species gave very different results. Geranium plants were 2.6 times, Tobacco 2.0 times, Coleus 1.5 times as heavy as the controls, while Fuchsia showed no increased growth at all from this treatment. Generally the treated plants flowered sooner and more freely.

By working with a current of air passing continually through his greenhouse, Mr. Andersen's results will be more satisfactory than Demoussy's, but it seems likely that he also will find that some plants respond to this treatment by increased growth, and others, on the contrary, do not.

We may briefly outline the principles which prepare us for striking variation in the response shown by different plants. When a plant grows to a greater size or yields a larger crop, as a result of increasing the percentage of carbon-dioxide in the air surrounding it, there are at least three separate physiological processes involved. These are related to one another as successive stages of growth.

The first stage is that more carbon-dioxide diffuses into the leaf, and hence the green cells have

more of this gas available for making sugar and starch by photo-synthesis in the light. The second is that more sugar can therefore be conducted by translocation down the leaf-stalk to the growing parts of the plant. The last stage is that, as a result of increased food supply, there takes place increased formation of new vegetative parts or more abundant formation of fruit, tubers or similar organs which store food-material.

There is, however, another set of considerations which complicates the whole matter, neglect of which has often led investigators astray. Suppose that the plants in question are growing where the light is feeble or the temperature low, then they may not be able to respond to the increased carbon-dioxide, because they are already doing as much assimilation as that amount of light or that degree of heat will allow. When light or temperature is low, one of these factors may be acting as a "limiting factor" to the amount of assimilation, and no increase of carbon-dioxide will cause an increase of assimilation, because the plant has as much already as it can utilise. Raise the light or the temperature, and then the plant assimilation will increase until it becomes "limited" by the low carbon-dioxide supply provided by the atmosphere: now it will readily respond to increased supplies of carbon-dioxide by increased assimilation. This interaction of limiting factors is not a special relation for assimilation, but is true also of growth and other physiological processes. The growth-rate of a plant at any given moment may be limited either by the temperature, or the water supply, or the internal supply of building material (sugar, protein, &c.). To quicken the growth-rate one must improve the particular condition which is actually limiting; improving the other conditions will have no effect.

The general outcome of these principles indicates that improving a factor in plant existence may have a positive effect, or no effect at all, entirely according to circumstances, and, indeed, according to circumstances which would generally be thought quite outside the problem.

A negative result such as that exhibited by the Fuchsia in Demoussy's experiments might be due to the fact that in this plant the assimilation and translocation are normally very efficient, so that it grows as fast as the temperature will permit, i.e., its growth is normally limited by temperature. If so, the only way to increase the growth is to raise the temperature; increasing the food supply will not do it.

Were a new experiment carried out at a very moderate temperature, possibly Geranium and Tobacco, which respond so well in Demoussy's conditions, would have their activity limited by cold also, and then they would no longer give positive effects with increased carbon-dioxide.

It would be very valuable if Mr. Andersen could arrange to carry out his experiment partly in this form; at least he should record the temperature which some previous observers have not done. F. F. Blackman, Botany School, Cambridge.

LAW NOTE.

NEW POISONS ACT REGULATIONS.

FOR some time past nurserymen desiring to sell poisonous substances to be used in agriculture or horticulture, either for the destruction of insects, fungi, or bacteria, or as sheep dips or weed killers, have been subjected to a good many irritating prosecutions at the hands of the Pharmaceutical Society. Although chemists and pharmacists are competitors of nurserymen in connection with the sale of these articles, the powers of prosecution for infringement of the Poisons Acts and Regulations are at present still vested in the Pharmaceutical Society.

The position of nurserymen who carry on their business in the form of a limited company has been especially unsatisfactory. Naturally a limited company, having no bodily existence, is bound to carry on its business by the agency of its directors and assistants; but the point has been raised by the Pharmaceutical Society that it is not sufficient for the limited company itself to hold a licence to sell a poisonous substance, and that, in order to escape the conviction of its assistants, the company must also obtain an addi-

tional licence for each assistant who performs the physical act of handing over the counter the sealed packet of insect destroyer or weed killer. Under the regulations which have hitherto been in force, no such licences could be obtained without advertising in at least two newspapers notice of intention to apply for same.

On the other hand, it has not been sufficient for the limited company to obtain licences for its assistants only, as the further point has been taken that, even if an assistant sells, he does not "keep open shop," and that in order to get over that difficulty both employer and assistant must have separate licences, even if a limited company could hold a licence at all, which was denied.

The position of a nurseryman carrying on the sale of these substances otherwise than as a limited company has been almost equally difficult. An employer holding a licence has been sometimes laid up or called away temporarily on urgent business, and in more than one case the assistant, selling the goods on his behalf in the interval, has been prosecuted by the Pharmaceutical Society and fined.

The position had begun to grow intolerable, but two difficulties stood in the way of nurserymen seeking to obtain redress.

In the first place it was open to doubt whether or not the Pharmaceutical Society was correct in the construction which it sought to place upon the law on the subject, and before the authorities could be pressed to take the matter up it was therefore necessary to obtain a definite decision from the High Court. A test case was therefore fought, which resulted in the technical arguments of the Pharmaceutical Society prevailing, and they gave clear proof of the difficulty of the nurserymen's position.

The second obstacle, however, appeared to be somewhat more formidable. Even if the time of Parliament were not too fully occupied during the next year or two with other matters, it was not likely that a further Act could be obtained from the legislature so soon after the passing of the Poisons and Pharmacy Act, 1908. The nurserymen, therefore, decided to follow the line of least resistance, and to endeavour to secure the desired reforms by urging the Privy Council to advise His Majesty to exercise the power of making further regulations under the Act in question. The result has proved eminently satisfactory, and is set forth in the additional regulations to which the assent of His Majesty, acting by and with the advice of His Privy Council, was given on November 10, 1911.

The principal reforms thus secured are as follows:—

1. Nurserymen and others (whether trading as limited companies or as private concerns) who may apply for licences to be granted to their assistants are relieved of the considerable expense of advertising, in at least two newspapers, notice of their intention to make such application.

2. The maximum fee to be charged on the first issue of an assistant's licence is reduced to 5s., the annual fee for subsequent renewal being 1s. 6d.

3. The new regulations recognise the propriety of granting a licence to a limited company. Although a limited company will still require to obtain licences for its assistants, this should put an end to the contention which has been raised that a licence cannot be granted to a limited company to "sell and keep open shop," and can only be issued to one of the directors in person.

4. It would of course be both unfair and unwise to suggest that the reforms now obtained indicate any leaning by the Privy Council towards horticulturists in their dispute with the Pharmaceutical Society. At the same time, it is permissible to point out that the new regulations could never have been obtained if the Privy Council had felt any fear of the "bogy," which is constantly being held up before provincial councillors by the Pharmaceutical Society, to the effect that the sale by nurserymen of poisonous compounds is liable to increase the average number of deaths either from suicide or misadventure. It is of course obvious that if a person takes a poisonous substance, either deliberately or accidentally, the trade of the licence holder from whom he originally obtained the substance is of comparatively little moment, the practical result being the same, whether the compound has been purchased from a licensed chemist or a licensed nurseryman.

Other points which will require to be borne in mind by those desirous of availing themselves of the new regulations are as follow:—

(a) The regulations will come into force on January 1, 1912.

(b) If an employer's licence is revoked or suspended the licences of his assistants are ipso facto similarly affected.

(c) The person on whose behalf any sale is made is to be deemed "the seller," so that employers (as in the case of holders of most other licences) are still held liable to see that their assistants do not contravene the law.

(d) Special forms of application, which are appended to the regulations, must be used in the case of applications for licences to limited companies, firms, or assistants.

(e) Notice of intention to apply for an assistant's licence must still be given beforehand to the police.

Fears had been expressed that it would not be possible to obtain the Royal Assent to the regula-

THE ROSARY.

CULTURAL HINTS FOR DECEMBER.

THE ground is now very wet, and it will be wise to delay any further planting if it continues sodden. Let me say that the transplanting of established Roses does not receive sufficient attention. The Rose is a somewhat gross feeder, and the soil sooner or later becomes exhausted; consequently, much good might be done by moving old plants and giving them fresh soil. When dealing with very large specimens, the shoots should be reduced, leaving only the best and youngest branches. In lifting old Rose trees, few fibrous roots are seen, and the few coarser ones cannot support a great quantity of top growth after transplantation; therefore, my practice is to thin out some of the shoots before planting. On

Roses undoubtedly enjoy a generous treatment; but, like other plants, they can be surfeited with manure. One needs to examine the ground well, and ascertain the condition previous crops have left it in. In some cases it would be better to release some of the humus by the application of lime, allowing the soil to lie fallow for a while. Stable manure is good upon very stiff soils, and well-rotted dung from the stock yard upon lighter soils. Pig and cow manures are especially useful for ordinary soils. Not a few of our successful growers obtain their best flowers by the aid of night-soil. Nor is this so offensive as might be imagined when properly prepared and applied. Let the night-soil be put upon a heap of loam, and covered with a little fresh earth. After a few weeks the whole should be turned over and well intermixed. It is then ready for use, and had better be placed below the surface of the soil.



FIG. 161. BAY-CALIFORNIA DISEASE MOSCOW "ROSE" (VARIETY "DE DIBBYAN" - G. MOSCOW (LITURKIANA)).

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tions until after His Majesty's return from India, and nurserymen and horticultural sundriesmen will doubtless feel considerable gratification that, amidst all the multifarious duties claiming attention on the eve of the Royal departure from this country, time should have been found to deal with the matter.

The successful result of the agitation for reform should certainly serve to encourage nurserymen in pressing for the removal of the many hardships affecting their trade. Having regard to the fact that they were opposed by so powerful a body as the Pharmaceutical Society, it should also serve to impress upon horticulturists how largely they may make their influence felt by means of combination and mutual support. The object lesson should prove especially useful at the present time when greater dangers (such as the agitation to tax land values and to throw millions of extra taxation, including the whole of the food duties, upon the land) are threatening those who have invested their savings in purchasing the soil from which their livelihood is derived. H. M. V.

no account allow these old plants to lie about after they are lifted, so that their roots are exposed to the drying air. In many cases the owner may object to moving some old favourite Rose, or it may be inconvenient to do. In such cases the plants may be much helped at this season if a good portion of the old soil is taken away from the roots and this replaced by fresh loam and suitable manure. New roots will develop in the fresh soil during the following summer, and the plant be greatly benefited.

MANURES.

Whilst the planting season was in full swing, I was frequently asked what manures would be most suitable for Roses. But so much depends upon the nature of the soil, that one hesitates to advise except generally. As a matter of fact Roses like almost any kind of manure. What the grower should aim at is to furnish in the manure what the soil is deficient in.

In the case of a hot, dry soil, I would give preference to cow manure over pig dung, the last being rather more drying.

But Roses do not require manure at the time of planting to the extent imagined by many. If the ground is dug deeply, and the bottom spit enriched, so as to provide food to the roots when they reach that point, it would be better, in many cases, to have the remainder little more than rich, loamy soil until the roots have got into it well, as they may be fed by surface dressings during their season of growth. Too often Rose beds are overdone with manure, or it is dumped into the hole and not sufficiently mixed with the soil.

Hedge Briars may still be planted. The late growth of climbers of such types as Wichuraiana, Ayrshire, and Climbing Polyantha Roses having provided many cuttings in the best possible condition for rooting; these should be inserted at once. Practice.

The Week's Work.

FRUITS UNDER GLASS.

By E. BENTLEY, Gardener to the Hon. VIOLET GIBBS,
Aldersham House, Hertfordshire.

FIGS.—The remarks in the Calendar for October 23 on the cleansing and pruning of Early Fig trees apply equally to the trees intended for successful fruiting. The Fig is very subject to infestations of mealy bug, and, unless vigorous measures are adopted, this pest will prove a continuous source of trouble. At Aldenham we have been experimenting recently with cyanide of potassium for the fumigation of fruit houses, and so far as can be ascertained at present, I believe that repeated fumigations of this substance will prove effectual in destroying all mealy bug. Any root-pruning that is necessary should be undertaken as soon as convenient after this date. Where the borders are comparatively large, root-pruning often results in increased yield, and especially in the case of trees with a somewhat restricted top growth. Narrow borders give the best results, and it is a suitable time to undertake any alterations that are contemplated in the rooting medium. The border should be well drained, so that plenty of water may be applied during the growing season without a danger of the ground becoming waterlogged. In order to prevent the roots from spreading too far from home, a rough brick wall should be constructed below the soil some 3 feet or 4 feet distant from the trunk of the tree, varying the width of the border according to the amount of trellis work that the shoots are required to furnish. The borders should be top-dressed with good loam broken apart and mixed with a sprinkling of wood ashes, lime rubble and bone-meal, or finely crushed bones.

THE ORCHARD HOUSE.—Immediately the opportunity presents itself the orchard house should receive a thorough cleansing. Afterwards attend to any necessary work connected with the trees, such as root pruning or lifting them. Plant trees, especially, often need to be root-pruned, which need may be seen in the strong shoots that develop in a single season, exhausting the energies of the plants to the detriment of fruiting. Permanently planted trees that show signs of exhaustion will be benefited by fresh soil. Take out a trench and remove some of the old compost, at the same time cutting back any gross growing roots that are met with. A portion of the surface soil should also be removed, and replenished with rich, fresh material. If ripe fruits are required by the end of May or early in June, some of the more promising pot trees of varieties suitable for early fruiting that are well furnished with fruit buds should be started gradually in a cool house. Afford water with care for the first few weeks, as the roots are in a dormant condition. Place the trees where they may obtain plenty of light, standing them on a firm bottom to prevent worms from entering the pot through the drainage holes.

THE VINERY.—Vines that were raised from "eyes" inserted last spring may, provided they are properly ripened, be pruned, cutting them back to two good buds. Dress the cut surface with styptic to prevent bleeding. Allow the plants to rest, keeping them moderately dry at the roots.

STRAWBERRIES. — A batch of Strawberries may be placed on a shelf in an early forcing house where a temperature of from 45° to 50° is maintained at night time.

LOAM AND OTHER ROOTING MATERIALS.—Get together a good supply of loam and other material for potting purposes, and the formation of Melon beds, which will have to be made early in the New Year. Store the soil in a cool, dry place. If the presence of wireworms be suspected in the turves, the latter should be charred as recommended in a previous calendar. Wood ashes are very valuable for many purposes, and should be placed in a covered tub to prevent the same from becoming rancid by the loss of their valuable properties from being washed out by the rains. Loam that is not rich in fibre should be mixed with peat, straw, horse-droppings,

PLANTS UNDER GLASS.

Dr. James H. Jones, Graduate of Howard P. Karschuld,
Esq., Gainsborough House, Acton, Middlesex.

LILY-OF-THE-VALLEY.—Retarded crowns (Berlin) of *Lily-of-the-Valley* may be had in flower by Christmas, if forcing is commenced now. Let the forcing be gentle at first, raising the temperature when the spikes begin to show colour, and lowering it again gradually as the blossoms expand, until a greenhouse temperature is reached. Aim at obtaining well-developed foliage, which is essential to the best results.

HIPPEASTRUM (AMARYLLIS).—It is comparatively easy matter to have plants of *Hippeastrums* in flower early in the winter. The essentials are well-ripened bulbs and healthy roots, the latter being the most important point. If plants have not been forced so early in previous seasons, make a selection of the best-ripened and largest specimens, and those which generally give promise of producing large flower-spikes. It will be advisable to mark these in some manner, so that they may be selected again next season for the earliest flowering. When this system is adopted, the bulbs start into growth quite easily, and, after a time, it will be found possible to have them in flower as early, or even earlier, than the present date. Remove the old soil from the roots previous to repotting them, and where there are signs of extra vigour in the bulbs, give these a larger pot, but not otherwise. For a potting compost, employ a mixture of turfy loam and lime rubble, which are the best materials to use early in the season. Our plants at Gunnersbury, which were plunged into cold frames as advised in the Calendar for June 10, have made excellent growth, and are, in every respect, satisfactory, and free from insect pests. As they are not required to flower early, they will not be started before the middle of January. Young bulbs that were raised from seed sown during the summer of 1910 have also made a satisfactory growth. These, from the commencement of summer up to the present time, have been accommodated in a north frame, provided with hot-water pipes. Not until the past few weeks has the frame been heated, as my object has been to get the bulbs thoroughly ripened, with a view to flowering the stronger ones next April. The bulbs were planted out, as I recommended in these columns last summer, to favour a strong growth, so that they might be had in flower as early as possible from the seedling stage. Up to the present time, the plants have not been rested. Seedling *Hippeastrums* raised this season from seed sown in cold frames and plunged in cold frames, are growing actively all through the winter. Individual plants that have grown satisfactorily should now be in thumb-pots, and should be placed close to the roof-glass in an ordinary stove-house. In cultivating *Hippeastrums*, it is always better to use small pots rather than large ones; many will flower quite well in 44-inch (48) pots; but, as a rule, 6-inch pots are the most suitable, allowing the very largest bulbs 7-inch pots. It is the practice of many to plunge the pots in some material, but this is not necessary. We do not plunge our plants before they flower, and they are shifted from house to house as circumstances require; but they are plunged out-of-doors during the summer, when they have finished their growth.

NARCISSI.—Bulbs of early varieties of Narcissus that were potted up some time previously, as recommended by me, should now be well rooted and ready for starting into growth, to provide a supply of early flowers. Under favourable circumstances, these should be in bloom by the end of the year. Remove all this early stock from the bed of ashes in which it is plunged, if this has not been done already, and, when the first batch is in heat, place the pots as near to the roof-glass as possible, maintaining a moist atmosphere. If a slight bottom heat, such as is afforded by a bed of tree leaves, is given, it will be an advantage. These remarks apply to trumpet Daffodils. Daffodils of the Paper White and Early Roman types may be had in flower now with very little forcing.

ROMAN HYACINTHS.—From this date onwards, successional batches of Roman Hyacinths will provide a supply of flowers suitable for a variety of purposes. Bulbs that were potted

last should be removed from their covering ashes before the leaves and spikes become drawn. If severe frost sets in, the frames must be covered with mats, for it is not advisable to allow the plants to become frozen.

TULIPS.—Tulips of the Duc van Thol section are very suitable for associating with Roman Hyacinths when in flower; endeavour to keep the growth as dwarf as possible for this purpose. If the bulbs are started into growth now, they should be in flower by the end of December, without resorting to hard forcing. Vermilion Brilliant is a very suitable variety to provide a succession of flowers to Duc van Thol. The variety forces well, and the flowers provide desirable colouring during the dull season.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower & Ls. of Sir G. L.
Holford, K.C.V.O., C.I.E., Westbury, Gloucestershire.

PHLEBNOPSIS.—There are few *Orchids* more difficult to manage during winter than the *Phlebanopsis*. The succulent and sensitive nature of the leaves, and absence of pseudo-bulbs for storing up nourishment, renders watchfulness on the part of the grower very necessary. The treatment required during this season will depend, to a great extent, upon how the plants have been cultivated during the summer and autumn. If the leaves have been properly consolidated by due exposure to light and air, the plants should be, in a manner, hardened, and better able to withstand dryness at the roots, a drier atmosphere, and a lower temperature, than specimens having soft, unripened foliage. Well-matured plants should pass the winter quite safely in a minimum temperature of about 55°, and will take no harm if the temperature should drop a few degrees lower on very cold nights. The plants are best suspended about a yard from the roof-glass, affording them the sunniest and lightest position possible. Whilst every care is necessary in affording moisture at the roots, sufficient water must be given to keep the leaves plump and firm, for plants that are allowed to suffer from excessive dryness during winter will often, when the sap becomes active in the spring, cast many of their leaves; but guard against an excess of moisture when the roots are inactive, for this will favour damping and spot diseases. It is impossible to give any precise directions with regard to these matters, but it is always better to err on the side of dryness at the roots, compensating with plenty of moisture in the atmosphere, for, if the early morning temperature is rather lower than desirable, there is always less danger when the roots are on the dry side. Newly-imported plants, or any that have not finished their growth, should be kept growing gently through the winter. They are best grouped together in the warmest house, where they will be constantly under the observation of the cultivator.

DECIDUOUS CALANTHES.—Amongst all the winter-flowering *Orchids*, none is more useful than the deciduous *Calanthes*, of which there are now many handsome kinds. The plants commence to bloom in November, and provide a display of flowers throughout the winter months. After the flowers are past, the pseudo-bulbs require a season of rest. They are best left in 'their pots, placing the latter on their sides in a light and dry place, where the temperature never falls below 55°. Some growers advocate shaking the plants out of their pots, and storing them thickly in boxes, covering the roots with dry sand; but, except for exigencies of space, this practice is not advisable, for the bulbs start more freely into growth when not disturbed.

VANDA TERES.—The beautiful *Vanda teres* requires a different treatment from others of its family. The plants have now completed their season's growth, which may be seen by the sealing over of the points of the roots. This Orchid requires a long season of rest, and, during its period of inactivity, water should be afforded in quantity sufficient only to prevent much shrivelling of the leaves. The temperature of an intermediate house, such as the majority of our growers occupy, will suit this species whilst at rest better than a warmer house. *Vanda hookeriana* and its hybrids should be afforded a similar treatment when signs of rest are apparent.

THE HARDY FRUIT GARDEN.

By W. HERBERT WARREN, ASSIST. CHIEF GARDENER,
HARVESTING HOUSE.

FIGS ON WALLS.—Figs will succeed in any moderately light garden soil, provided the substratum is not wet or cold; therefore, a border for Figs should be drained perfectly. The principal cause of failure in growing Figs out of doors in this country arises from not choosing a suitable situation, such, for instance, as a south wall. Restriction of the roots is an essential point in their successful cultivation, for with a free root run the trees grow too luxuriantly, and fail to produce or mature satisfactory crops of fruit. The object of root restriction is to induce the trees to make short-jointed wood that may become fully matured before winter. If the roots cannot be otherwise kept within bounds root pruning must be resorted to. In planting—unless the soil is of a very poor nature—no manure should be employed; it is far better to give the trees a good mulching of cow manure after the planting is completed. The distance apart at which the trees should be planted, against a wall 10 feet or 12 feet high, is from 16 feet to 18 feet. The best form of training for wall Fig trees is the fan shape. In pruning and training aim at securing a regular supply of young wood in every part of the tree. The branches should be trained sufficiently far apart to allow the sunshine and air to reach every part of the tree; the branches of those kinds that produce very large leaves should be at least 12 inches or 14 inches apart. During the early part of the summer, when the young shoots have completed or almost finished their growth, they should be stopped to assist the young fruits to swell. Lateral shoots generally bear plenty of fruit during the latter part of the summer or early autumn, but they will not ripen in this country during the same season. Fruits of this crop that have grown to half their proper size or even such as are as large as a Marrow Fat Pea seldom survive the severity of English winters, and it is the common practice to remove these at the end of the autumn. This is the correct thing to do, and in many instances their earlier removal would be of benefit to the embryo fruit usually found at their side, or near by, but which are small enough to escape injury, provided the trees are sufficiently protected during the winter. During the summer season the borders must be kept well supplied with water, and the regulation of the shoots attended to. Before frosts appear the trees should be protected, but use no more covering than is absolutely necessary. The trees may receive a check when it is removed in the spring. Where procurable, dry bracken Fern forms an excellent material for the purpose, for whilst affording adequate protection to the branches it does not exclude the air. The winter pruning of the trees may be undertaken just before the sap commences to rise, retaining as many fruiting branches as are necessary to furnish the wall. All shoots that are not required should be cut clean away, except where a supply of wood may be wanted for any particular purpose. In such cases a few branches may be shortened to one or more buds. All shoots that are retained for bearing fruit the following summer must remain intact. After pruning, and before the branches are again tied or nailed into their respective positions, the trees may be dressed or washed with an insecticide if this is necessary.

THE KITCHEN GARDEN.

By JOHN DODD, Kitchen Gardener, FISH MARKET GARDENS,
WINDSOR.

MUSHROOMS. Where a regular supply of Mushrooms is required throughout the winter and spring, it is necessary to make up a fresh bed every three or four weeks from the present time until the end of March. It is important that the manure be thoroughly prepared before it is taken into the Mushroom house. When the droppings are being collected, they should be placed together as quickly as possible, and turned every other day for 10 days, after which they should be ready for removal to the Mushroom house, where they must be allowed to remain in a heap for a few days before the bed is made up. By that time the temperature of the manure should have risen to 75° or 80°. It should then be rammed tightly together, and, when all danger from overheating is past, the spawn should be inserted about 1 inch below the surface, and

10 inches apart. A layer 2 inches deep of new loam is not too much soil to spread over the bed, and it should be beaten lightly, using the back of a spade. Examine the beds from which supplies are being gathered at least once a week, so that water may be afforded when necessary. But overhead waterings should be avoided whenever possible whilst the bed is in bearing. I have often noticed that many young Mushrooms are damaged by too much moisture. If a cool, moist atmosphere is maintained, this will lessen the need for overhead waterings. Instead of applying fire-heat, close any ventilators which may cause a draught, and keep out all the cold air possible. Damp the floor and walls of the house when the atmosphere seems at all dry. The temperature of the house need not be more than 50° in winter, and may be allowed to drop to 45° in very cold weather, when the amount of moisture afforded should be reduced.

TOMATOS.—Tomato plants intended for furnishing a supply of fruits in winter need to be watered very carefully, but do not allow the soil to become too dry, or many of the fruits may split after water is afforded. The temperature of the house should not be higher than 60°, and the atmosphere should be kept moderately dry. A little more freedom of growth may be allowed during winter, to keep the plants healthy. Young plants intended for fruiting early in April should be ready for transferring into 6-inch pots, in which they may remain until January, when, if all goes well, they should be ready for placing in their fruiting pots. The pots should be washed and crocked carefully. The potting compost may be composed of two-thirds turfy loam, and one-third leaf-mould, with sufficiently rough sand to keep it porous. Pot moderately firmly. It is important that the plants be kept to within a few inches of the roof glass, which should never be allowed to become dirty. If the soil is moderately moist at the time of potting, water will not be necessary until fresh roots reach the sides of the pots. The aim of the grower should be to keep the plants as sturdy as possible. The temperature of the pit should be about 55° at night; but in very cold weather a few degrees lower will not matter. Some material should be placed over the roof in cold weather for a protection, to lessen the need for excessive fire-heat.

CAULIFLOWERS. Cauliflowers planted growing in cold pits should be afforded plenty of fresh air whenever the weather is favourable; whilst on mild days the lights may be removed entirely in the mornings, to be replaced in the evenings. The plants should be placed within 1 foot of the roof-glass, with the object of keeping them as hard and stocky as possible. It is not too late to pot young plants for a succession. They may be potted in 4-inch pots, using good, rich soil. The lights should be kept closed for a few days to allow the plants to make fresh roots as soon as possible. The plants must be watered carefully during the winter.

THE FLOWER GARDEN.

By J. J. JONES, GARDENER, THE FLOWER GARDEN,
WINDSOR.

PROTECTING TENDER PLANTS. It is a long quite time that some means should be in readiness of efficiently protecting such shrubs or other plants that are not sufficiently hardy to stand the rigours of a severe winter. Two years ago some shrubs in the garden here which had survived the winters for 30 years were severely damaged, and a few were killed. It was curious to note that the damage was not universal, for some specimens of the affected species escaped without injury, even on the same spot; this was especially noticeable in the case of *Olearia macrodonta*, *O. Haastii*, and certain Bamboos; also *Cornus capitata*, the finest specimen of which was killed. Not one of the Sweet Bays was killed, but some of the plants suffered severely. The following year *Arbutus Urede* (Croomii) was the only plant that succumbed, and quite a number of plants, by no means indisputably hardy, were unscathed. Soil forms one of the best protective materials; it should be heaped around the stem to a depth of about 6 inches in the case of Roses, *Romneya Coulteri*, varieties of *Hypericum* and any other plants which have several shoots springing from the ground. It may also be employed in the case of clumps of *Montbretia*, and any bulbous plants which cannot be considered

to be quite hardy. Rough straw ropes form a good protection for such plants as *Nandina domestica*, *Casualpinia japonica*, *Daphniphyllum glaucescens* and *Ligustrum sinense*, and they may be wound around the stems of taller specimens. Wall shrubs may be protected with branches of Spruce, or a better method is to employ straw, kept in position by means of branches of deciduous trees, especially for such plants as Myrtles and Fuchsias. It cannot, however, be denied that a very severe frost is apt to penetrate the most carefully-applied protection.

SURFACE DRESSING.—Sifted soil compost or decayed rubbish (the latter only if free from the seeds of weeds) should be applied to many kinds of flowering plants which exhibit a tendency, when left in the ground for a lengthened period, to come to the surface. A better method still is to lift and re-plant them, but the time necessary for this latter operation is sometimes lacking. Lily-of-the-Valley and Daffodils should be given a dressing an inch thick, or, if the Daffodils are growing in grass, 2 or 3 inches, according to the nature of the soil. Groups of Phloxes will need 3 to 4 inches; the ground between the clumps should be filled in to make an even layer 1 inch thick at each clump. This treatment is especially suitable to borders outside the flower-garden. Lawn grass in poor condition should be treated with very fine soil, soot or compost. It is sometimes considered essential to break the surface with a rake previous to making the application, but equally good results are obtained by scattering the dressing over the ground, and leaving the rain and other agencies gradually to work it in.

THE FRENCH GARDEN.

By FRED. AUSTIN, GARDENER.

SPRING CROPS.—The Lettuces, owing to the cold and wet weather, have not been so much retarded. The keen winds have somewhat retarded the growth of the plants, but the cold has favoured a hardier and sturdier growth, rendering the plants less liable to attack of mildew, which generally appears about this time. The Cos Lettuces "Paris Grey" intended for forcing on hotbeds are ready for transplanting a second time. The beds are prepared for three rows of cloches, as was done for the first planting in October. The plants are carefully lifted, and the cotyledons and any decayed leaves removed. They are set 14 per cloche instead of 30 as at the first planting. It has not yet been necessary to cover the cloches with mats as there has not been hard frost. Should very cold weather set in, however, every precaution must be taken. Lettuces sown about the middle of November are just coming through the soil. They should be thinned out at an early stage in order to prevent damping off, as they will not be pricked off until early in February.

BLACK SOIL.—The compost produced by the decay of the hotbeds, which were made the previous spring, is one of the greatest assets under this system of intensive culture. It favours the growth of fibrous roots which are so beneficial to a quick-growing and healthy vegetation; in the early spring and autumn its dark colour attracts the heat of the sun, frosts have very little effect owing to its porosity, and it is workable in any weather. If added to the light soil, it serves to retain moisture in the soil, while in heavy land it promotes a more open texture. The produce obtained from it is clean and wholesome, and this is a point worth the attention of those who may object to vegetables grown directly in the manure. Our black soil which is intended for hotbeds next season is now placed in five ridges, 3 feet wide at the base, 3 feet high, and 65 feet long, perpendicular to the future position of the beds. The surplus, equivalent to one-third of the whole quantity, will be carted away to some part where it will be needed. Some of the soil will be used for filling the frames intended for cold work, and the remainder will be placed in a heap for use at future sowings and transplantings.

GENERAL WORK.—Every advantage should be taken of favourable weather to prepare the ground for planting the open-air crops. It should be given a heavy dressing of manure and dug deeply. Any necessary alterations and levelling must be completed without delay, as after Christmas most of the time will be occupied by the making of hotbeds and the planting of the numerous crops.

James Douglas. The news of the sudden death of this well-known and highly-respected gardener and florist will be received with profound regret. Douglas was the last of the old school of florists, and his death has severed a link with the past that can never be repaired. Our own columns have frequently borne witness to his enthusiasm for such flowers as Carnations, Auriculas, Polyanthus, and Tulips; indeed, Mr. Douglas was one of our oldest contributors. Only a week ago he wrote to us with respect to arrangements for contributing articles on his favourite flowers during the present season, and the first of what promised to be an invaluable series reached the office after his death. James Douglas had a pleasant way of working into his cultural articles a great deal of florists' lore, which was not merely interesting, but helpful to an understanding of the true properties of the flowers which he was describing. His writings were of permanent value, because they were based on his own experience as a cultivator. No man



ISOPYRUM GRANDIFLORUM; FLOWERS LAVENDER-BLUE.

FROM A PHOTOGRAPH TAKEN BY MR. FORREST ON A LIMESTONE CLIFF ON THE
LICHANG RANGE, CHINA.

excelled Douglas as a plant grower, and it will be remembered that he exhibited with extraordinary success at most of the great shows before leaving Great Gearies garden, Ilford, to start business as a nurseryman at Bookham. His collections of Auriculas shown at the R.H.S. meetings in recent years have excelled anything of the kind ever seen, and the Council has shown its sense of the general appreciation of them by awarding Mr. Douglas the gold medal on several occasions. His personal qualities were as high as his professional attainments, and his name was, and will remain, always associated with all that was best in the horticultural world. Amongst his public services may be reckoned thirty-two years work on the Committee of the Gardeners' Royal Benevolent Institution, and he was not only a permanent member of the Floral Committee of the Royal Horticultural Society, but for some years represented professional gardeners on the Council of that Society. He gave continuous help to the National Auricula and Primula Society and other special Societies. Douglas was awarded the Veitch Memorial Medal, and in 1899 the Victoria Medal of Honour. No man deserved these distinctions more than he, for his life and work afforded an exemplary example for the younger gardeners of the present day to emulate.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of this Society will be held on Tuesday, the 26th inst. In the afternoon Dr. J. BRETHERTON-FARMER, F.R.S., will deliver a lecture on "Mistletoes and Parasites."

HORTICULTURAL CLUB.—The next dinner of the Club will take place on Tuesday, December 5, at the Hotel Windsor, Victoria Street, S.W., at 6 p.m., when Mr. ARTHUR W. SUTTON, J.P., V.M.H., will give a lecture entitled "Four Hundred Miles on Horseback East and West of the Jordan." The lecture will be illustrated by 100 painted views of the Lebanon, Gilead, Bashan, Moab and Southern Palestine.

THE WINTER CARNATION SHOW. Mr. ARTHUR J. COLE, Secretary of the Portland Horticultural Society, has announced that the show will be held at Regent's Park on the 5th and 6th inst., during the Smithfield Cattle Show week. Then special trains will be run to London from the provinces at reduced fares.

ALTERATIONS AT GRIMSTHORPE CASTLE.—The Earl of ANGLING is carrying out extensive alterations and improvements at Grimsthorpe Castle, his Lincolnshire seat. These include a new heating installation on the hot-water low-pressure system, which is being carried out by Messrs. FOSTER & PEARSON, Ltd. The same firm are also erecting a system of domestic hot water supply.

FORESTRY DEGREE AT ABERDEEN UNIVERSITY.—At a recent meeting of Aberdeen University Court, a resolution was passed approving of the institution of a degree in forestry. The course for qualifying for the degree will consist of two sections, the first including botany, zoology, natural philosophy, and chemistry, while the final examination and the major part of the course will consist of the subject of forestry in its various departments. A three years course is contemplated.

LINNEAN SOCIETY.—The next general meeting will be held on the 7th inst., at 8 p.m. Papers:—1. Prof. Percy GREGG: "The Inter-relationships of Climates." 2. Mr. H. N. DIXON: "On some Mosses of New Zealand." Exhibitions:—1. Dr. GEORGE HENDERSON—Lantern slides taken during an expedition through Kashmir, Little Tibet and Turkestan; 2. The same—Variation in the foliage of *Alnus*; 3. Mr. W. C. WORSDELL: "Some Aborigine, Tasmanian, and other Melanesians."

NORTHERN FRUIT CONGRESS.—At the exhibition, held at Newcastle on the 15th ult., in connection with the North of England Horticultural Society's Fruit Congress, Messrs. MACK & MILN, Darlington, were awarded a large Silver Medal for a collection of Apples.

SWEET PEA DISEASES.—The authorities of the University of Pennsylvania have decided to conduct an investigation into the diseases which affect Sweet Peas, and, if possible, to find remedies for them. The results will be watched with interest by Sweet Pea growers in this country, who would especially welcome a solution of the problems of "pea streak" and "mould."

WESTON - SUPER - MARE CHRYSANTHEMUM SHOW.—We learn from the secretary, Mr. J. LEE, that our correspondent took too optimistic a view of the success of the recent show. However successful the show may have been as an exhibition, the society is still left with a deficit on the year's working, besides that incurred during last season.

BATTERSEA PARK.—For some time past the Parks and Open Spaces Committee of the London County Council have had under consideration the desirability of converting the botanical garden at Battersea Park into an Old English garden. Having regard to the comparatively limited extent to which the garden is at present used, the Committee think that it would be advantageous to make the ground more attractive for the general public, while still offering facilities for the study of special plants as at present. The cost of carrying out the most suitable scheme in its entirety is estimated not to exceed £265, and it is proposed that the initial works of drainage, water supply and the formation of paths and pond should be put in hand during the coming winter at a cost of about £100.

LINDLEY MEDAL AWARDED TO MR. JAMES HUDSON.—At the meeting of the Council of the Royal Horticultural Society held on the 21st ult., the secretary drew attention to the splendid exhibit of Fig trees made by Mr. JAS. HUDSON on the 7th ult., on the occasion of his lecture on the cultivation of the Fig. It was proposed by the President, seconded by Sir ALBERT ROLLIT, and carried unanimously, that a Lindley Medal for Cultivation be awarded to Mr. HUDSON.

SALTS OF AMMONIA AS FERTILISERS.—It is generally accepted that most cultivated plants absorb nitrogen in a combined form, preferably as nitrates. Nitrates are considered to be immediately available, whereas other forms of combined nitrogen have first to be transformed into nitrates by the soil bacteria. Latterly, greater attention has been given to salts of ammonia as fertilisers. The increased fertility of soils following partial sterilisation has been shown by ROBERT and HENDERSON to be due to the acceleration of the production of ammonia in the soil rather than to the formation of nitrates; this is also in harmony with recent statements as to the value of ammonia compounds as plant-food. Experiments made by W. P. KELLEY, of the Hawaii Agricultural Experiment Sta-

tion, have led to the important result that, in the case of Rice, ammonium sulphate is of about twice as much value as ammonium nitrate of soda produces little or no effect. The conditions in Rice soils are peculiar; the Rice is grown in standing water, and consequently in a saturated soil, conditions very unfavourable for nitrates. It is shown actually that denitrification takes place instead, with the result that, as some instances, nitrates are formed from added nitrates with consequent ill-effect to the Rice. There is evidence that in some plants ammonia is more easily assimilated by plants than are nitrates, and it is not unreasonable to suppose that this holds good in the case of the Rice plant.

LATE-FLOWERING SHRUBS.—Mr. P. HANSMEIER draws attention in *Die Gartenwelt* (xv. 44, p. 608) to three useful late-flowering shrubs, *Artemisia lactiflora*, *Gaura Lindheimeri*, and *Salvia angustifolia*. *Artemisia lactiflora*, a Chinese species, bears white, fragrant blossoms from the latter half of August till the advent of frost. *Gaura Lindheimeri* flowers throughout the summer and autumn. It forms a dense bush, with the inflorescences raised well above the leaves. The reddish-white flowers are enclosed in a red calyx, and are useful for cutting purposes. Like the *Artemisia*, *G. Lindheimeri* may be propagated by cuttings, or it may be raised from seed. *Salvia angustifolia*, though a Mexican species, is hardy, and flowers late. The flowers are bright blue, and the plant is a vigorous grower, reaching a height of 4 to 5 feet. *Salvia angustifolia* prefers a sunny position, and may be propagated by division or by cuttings.

A TREE-LIKE SEDGE.—Dr. ENGELER describes and figures a tree-like Sedge, *Schoenodon pectinatus*, in the *Abhandlungen der K. Preuss. Akademie der Wissenschaften*, 1911. This plant is tree-like in its branching, not in dimensions, being only about 18 inches high. It recalls the Brazilian *Vellozia*, as shown in MARTIUS's views of Brazilian vegetation, and repeated in LINDLEY's *Vegetable Kingdom*. *Schoenodon* is a native of the Cameroon region, West Africa, and is the only known member of the Cyperaceae having a distinct branched development. Several other members of the same family have a short undivided or forked trunk. Among them *Cephalocarpus*, with which ENGELER compares his plant anatomically. It is not commonly known that our native *Carex paniculata* develops a trunk, often several feet in height, nor does Dr. ENGELER mention this fact in his discussion of the subject.

PAPER MAKING AND CROP PLANTS.—The Year Book of the Department of Agriculture for 1910 (U.S.A.) contains an interesting account of experiments which are being made by Mr. CHARLES J. BRAND, of the Bureau of Plant Industry, with a view to determine whether the at present unused residues of various crop-plants can be profitably employed in paper making. It is pointed out by Mr. BRAND that good reason exists for the belief that, owing to the depletion of forests, wood pulp supplies for paper making are likely to fall off very considerably in the near future. Thus, 40,000 cords less Spruce were used in 1909 than in 1907, and the cost was considerably greater. On the other hand, over 100,000,000 acres are under Corn (Maize) in U.S.A., and the Corn stalks left after the crop is taken are not at present utilised. Experiments show that paper can be made from this residue, but it remains to be seen whether the price the paper makers can offer the farmers will be such as to make it worth the while of the latter to prepare and sell the Corn-stalk residues.

THE UNEMPLOYED AND THE LONDON PARKS.

—The Parks Committee of the L.C.C. have, in response to a request, prepared a list of works, consisting chiefly of digging, levelling and re-turfing playing and other grounds, which they consider to be suitable for unemployed men during the coming winter. As, however, such works could not be regarded as being required or likely to be undertaken either at all or in the immediate future, the Committee do not feel justified in asking the Council to make any recompense in respect thereof to the funds of the Central Unemployed Body for London.

PLANTS OF NEW SOUTH WALES.—The third part of Mr. J. H. MAIDEN'S *Illustrations of New South Wales Plants*, not previously depicted, has appeared. This part is devoted to the genera *Callistemon* and *Swainsonia*, both of horticultural interest. Some of the species of the former genus were dealt with in part ii., and the rest will appear in part iv. Several of the species of *Callistemon* are among the most conspicuous features in Australian vegetation, but they are rarely cultivated in this country now. They are popularly known as Bottle-brushes. Respecting *Swainsonia*, Mr. MAIDEN states that *S. Greyana* and *S. galegifolia* are notoriously injurious to animals, and are known locally under the names of Darling Pea, Indigo, &c. Other species are eaten in mixed pasturage by sheep, apparently with impunity, but there is much uncertainty as to which are noxious or relatively innocuous. It is probable that it is the seed that is poisonous, as in other members of the family, and not the herbage.

A NEW DISEASE OF MELONS AND CUCUMBERS.

—In the current number of the *Journal of the Board of Agriculture* an account is given of a fungous disease of Melons and Cucumbers which has not been known to be present in Britain until this year. The fungus causing the disease is known as *Colletotrichum oligosporum*, and, though not previously reported in this country, it has been prevalent in France and Italy for some time. All parts of Cucumber plants are liable to attack, and, when the soil is infected, seedlings soon succumb. Spots are formed on the leaves of older plants, but the areas affected in this way do not fall away completely as they do in the case of the Cucumber disease caused by *Hormodendron hordei*. Large sunken patches are formed on the fruits, which soon die. The spores of the fungus arise in small pustules on the parts attacked and readily spread the disease to healthy plants. It has been found that spraying the plants either with liver of sulphur—1 ounce dissolved in 3 or 4 gallons of water—or with self-boiled lime-sulphur mixture checks the progress of the disease. Emphasis is laid on the necessity of removing affected plants as soon as possible, in order to prevent infection of the soil. Growers who have already experienced severe losses on account of attacks of the leaf-blotch disease (*Cercospora melonis*) and of *Hormodendron hordei* will doubtless be on their guard against this new pest. Fortunately, the leaf-blotch disease appears to have lost some of its former virulence.

PUBLICATIONS RECEIVED.—*Transactions of the Edinburgh Field Naturalists' and Microscopical Society*. Vol. vi, part iv. (London: Wm. Blackwood & Sons.) Price to non-members, 4s.—*An Encyclopædia of Gardening*, by W. P. WILKIE (London: J. M. Dent & Sons.) Price 1s.—*Histoire des Légumes*, par M. Georges GIBAUT. (Paris: Librairie Horticole.)—*The Profitable Culture of Vegetables*, by Thos. Smith. (London: Longmans, Green & Co.) Price 6s.—*The Melbourne Argus Booklet of the Australasian Mails for 1912*. The London offices of *The Argus*, 80, Fleet Street; free, or 1d. for postage.

DWARF CHRYSANTHEMUMS.

VISITORS at the recent exhibition of the National Chrysanthemum Society were loud in their praises of a group of dwarf Chrysanthemums shown by Messrs. Butler Bros., of Bexley Heath. Every plant was a perfect little specimen, not more than a foot or 18 inches in height, but furnished with half-a-dozen or more good blooms. Nothing could be more suitable for the decoration of greenhouse and conservatory stages in November and December than these pretty plants, whilst they are admirable subjects for use in a dwelling room. Another excellent exhibit of dwarf Chrysanthemums was shown by Messrs. James Veitch & Sons, Ltd., at the Royal Horticultural Society's meeting on November 7. In figs. 162 and 163 are reproduced plants from Messrs. Butler's and Messrs. Veitch's groups respectively. The culture of the plants is very simple. The cuttings may be rooted in a cold frame, and the plants should be given a cool treatment from the com-

Caprice du Printemps section, the type of which is pink, but there are varieties known as Yellow or Golden Cap, Red Cap, White Cap, Purple Cap, and Greening's Caprice. The selection shown by Messrs. Butler at the Crystal Palace included Caprice du Printemps, Kathleen Thompson (bronze), Tapis d'Or, Mrs. Roots (white), Felton's Favourite (white), Dazzler (red), La Pactole (bronze), Yellow Caprice du Printemps, October Yellow, October Bronze, Mrs. Greening (pink), and Mrs. Coates (single pink).

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE LATE JAMES BUDD.—Mr. Orpet's reference (see p. 372) to the late James Budd, a former Hampshire gardener, has been productive of a somewhat pathetic incident. It had but recently become known to me that Mr. Budd, when leaving Lockerley Hall, South Hants., after a



FIG. 162.—A GOOD SPECIMEN OF DWARF CHRYSANTHEMUM; THE VARIETY IS YELLOW CAP. HEIGHT 18 INCHES.

menement. The cuttings should be inserted in March, and after they have made growths 2 inches long, they should be pinched back to the first pair of leaves. Two, or at the most three shoots develop, and after a time these should be pinched again to two leaves, and each subsequent growth treated in a similar manner until the end of July. After this stage they should be potted on in the usual way, but they will not need pots larger than 5 inches in diameter, the final potting being done about the middle of July. Afterwards the pots should be plunged out-of-doors in a bed of ashes. The repeated pinchings should result in from 12 to 15 shoots forming, and all but a single flower bud should be removed from each growth. The plants may be allowed to remain out-of-doors until the flower buds show signs of bursting, when they may be placed in the glasshouses, where they will last for more than a month in flower. The most suitable varieties for the purpose are those of the

long service of 45 years at that fine place, came to reside in the Richmond Park Road, Kingston, with some of his children. I had the pleasure of visiting Lockerley Hall, and of writing a description of the gardens for one of the Southampton papers, some 42 years ago, and that was my first and I think my last association with Mr. Budd. But on reading Mr. Orpet's reference to him, I took a copy of the *Gardeners' Chronicle* with me, intending to make a call upon him, and was intensely saddened to learn that death, following rapidly on a severe bronchial attack, had carried him off so long since as January last. He was buried in the grave which holds his wife at Lockerley, near Romsey. When Mr. Budd was in the early vigour of manhood he was one of the great gardeners of South Hampshire, and Lockerley Hall ranked high as a fine garden. Cranbury Park, near Winchester, Hurley Park, Mottisfont Abbey, Melchet Court, Broadlands, Romsey, Paultons Park, in the New Forest, and Cadland, opposite Netley Hospital, were all great gardens, and were controlled by very able men, not one of whom appears now to be living.

L.C.C. PARK EMPLOYEES.—The resolution carried by the L.C.C. regarding the promotion of the employees in the parks staff must eventually have an effect on the type of gardeners employed in the parks. At present the lads are recruited from the neighbourhood of London, and although they may not be wanting in good qualities, they lack the aptitude which is a marked characteristic of lads who are bred and born in an environment in harmony with their vocation, such as lads in the country possess; especially is this so in regard to gardening and gardeners. It would be advantageous both to the lads and the public service if the improvers were to serve a period of three years or so in gardens or nurseries in country districts. To those aiming at becoming permanent employees on any staff, where there are such prospects of promotion as exist in the L.C.C. service, the training they would receive in nurseries or private gardens of repute would be of the greatest service, especially if facilities were afforded for the entrance into the service. In the interest of the State, it is essential to have stability in employment, but what is going to be the result if the future gardeners employed in the public parks are mainly composed of town-bred individuals? *P. W.*

NUT TREE IN FLOWER. On the 23rd ult. I saw six or eight Cob-nut trees with red, female flowers open, say, 10 on a tree; no catkins were open. The trees have grass over their roots. Have any of your readers noticed Nut flowering so early in other years? I think it is usually half-way through January before these flowers open. *Cecil H. Hooper, Wye, Kent.*

FRUITING OF THE MYRTLE.—I enclose some pieces of Myrtle cut from a plant 10 feet high and 10 feet wide, growing on a south wall in these gardens. The top of the plant is a mass of berries as the pieces enclosed show. *F. G. Brewer, Brigantia Gardens, Pont Dolu, Dolgelly, N. Wales.* [We have never seen the Myrtle more plentifully fruited than on these shoots.—*Eds.*]

A NEW FRUIT MANUAL.—*Yorkshire Gardener* (see p. 341) touches the weak spot in any proposal to issue a new and up-to-date edition of *Hogg's Fruit Manual* when he refers to the great cost. If the book be issued on the lines suggested by some correspondents, it would be so dear that only rich people could afford to purchase it. Those who have the latest edition of the book need only a supplement, giving all the varieties of fruit introduced since the last edition was issued. Even this would necessitate a good-sized volume. To reproduce, in any new edition, varieties of fruits that have passed entirely out of cultivation and are, for all ordinary purposes, useless, would be folly. Mr. E. A. Bunyard asks for a book such as could hardly be published at less cost than from 3 to 4 guineas, because, to make it complete, such a book should be profusely illustrated. The ordinary gardener requires a comprehensive book, costing about 5s. *D.*

—It would be a pity to omit any varieties from any revision of this work, but could it not be brought out on the same lines as *Kerner's Natural History* at 2s. 6d. every fortnight? A greater number of copies would be sold, as it would be within the reach of all who wished to purchase a copy. *George N. Trehutt.*

"MANUAL OF BRITISH FRUITS."—Could not a new edition of the *Fruit Manual* be issued in parts: (1) Apples and Pears; (2) Grapes and Figs; (3) Stone Fruits; (4) small fruits, Nuts, &c.? In any case, it should be on the lines of *Hogg's Manual*. I have lately unearthed my copy of *British Apples*, and found it very interesting. As many of your readers will remember, it was compiled by the late Mr. A. F. Barron, after the Apple Congress of 1883; he was a very high authority on fruits in general. The suggestions of Mr. E. Bunyard, on p. 341, as to the distinctive ideals in fruits and foliage, remind me of *Apples of New York*, a work published some few years ago by the local authorities of that State, mainly for educational purposes. It is in two volumes, and contains a good deal of useful information. The coloured plates form an important feature, though to

British eyes they seem a little too vivid in colour. A son of mine went to the States a few years ago with a number of teacher confères to inspect some of the country schools. One of the local education authorities in New York, finding that he was interested in school gardens and fruit trees, sent him a copy of the work. *H. J. C.*

NEWCASTLE FLOWER SHOW.—As a member of the society which is responsible for the Newcastle Flower Show I desire to bring forward a matter which concerns not only the society itself but also the public at large. The actual name of the society is the Northumberland, Durham and Newcastle-on-Tyne Botanical and Horticultural Society. It is not the oldest society in the north of England, but it is certainly one of the oldest. Now, does it live up to its name? What does it do to justify such a title? Nothing at present, except hold a flower show once a year. And the serious aspect of the matter is that the society is £400 in debt. What is to be done, for we cannot stand by and see this old society go down? I would suggest (1) that a public meeting be called as soon as possible; that all horticultural societies in the two north-eastern counties be asked to send delegates. (2) That new blood be infused into the committee; there is no lack of keen horticulturists in the district. (3) That the society co-operate with the North of England Horticultural Society. This latter society has been brought into existence with the goodwill and support of the Royal Horticultural Society which co-operates with it in the north of England. (4) That it be clearly understood that the society live up to its name, and lead the two north-eastern counties in all that appertains to horticulture (educational, scientific, commercial, and general). (5) Personally, I would suggest that, as soon as the deficit is wiped off, a large spring show be held each May in Newcastle, and that all the profits be given to the hospitals. Speaking for the N.E.H.S., we will gladly do all we can to restore this old society to its former position and back it up in its work. *J. Bernard Hall.*

NOTES FROM BELVEDERE.—The following letter was received some weeks ago by the owner of Belvedere, St. Lawrence, Isle of Wight, from the head gardener, and, referring as it does to many plants that are rarely grown in the open in England, it will prove interesting to readers:—"Bignonia Tweediana has made very rapid growth this season, and has reached a good distance up the roof in front of the gazebo. *Solanum aviculare* is 12 feet in height, and completely covered with large clusters of berries and purple flowers, which it has produced continually since May. It is a very desirable and handsome shrub. *Bignonia grandiflora* is another fine sight with hundreds of its large, scarlet, bell-shaped blooms from the base to the top, and as it has climbed well up the house, they are visible from a considerable distance. *Mandevilla suaveolens* has also been a beautiful sight for about six weeks, entirely covered with its large, sweetly-scented blossoms of purest white. *Bouvardia triphylla* is still a mass of scarlet bloom which almost entirely covers the foliage. It has been in flower for about 10 weeks, and there is a row of very sturdy plants from 3 feet to 4 feet in height. *Romneya Coulteri* has also been very free-flowering, and the young suckers when transplanted grow even more rampantly than the older specimens. They evidently like this limestone soil, with plenty of manure added each year, and occasional copious watering. The two clumps of *Phormium Tenax* have grown to a great size. I have made another clump of the rose-coloured *Gynurium* in a very conspicuous position in the grass in the lower garden, and it and the old one are now both of a very large size, with scores of plumes starting to ascend. All the *Crimins* have grown to an immense size, and are flowering very grandly, as also all the species of *Eucomis*. *Erythrina cristagalli* is very prominent at the present time with its large spikes of scarlet flowers. *Cyclamen hederifolium* (*Neapolitanum*) is a complete carpet with its numerous charming blooms. *Curcuma angustifolia* is also in fine flower, as is also *Rosa bracteata*. *Amaryllis Belladonna* is a superb mass of flower-spikes, which are fully 3 feet high. *Hovenia dulcis* has grown into a very large shrub, or, I may say, small tree. I had hoped to see flowers this season, as the last year's shoots escaped being cut back last winter, but have been disappointed. *Fendlera rupicola* and *Tri-*

cuspidaria lanceolata have made fine growth, and the latter is loaded with its bell-shaped, cherry-red flower-buds in all stages of development, some nearly fully expanded. *Lobelia cardinalis gigantea* is a grand sight. The clump which I put in the Lily tank about three years ago is very massive, and fully 5 feet high. All the autumn, winter, and spring-flowering bulbs have had a most thorough ripening this summer, and as I make a very special point of leaving all the foliage on until it is fully ripened, there should be a grand display of the whole collection at the proper season. *Leontotis Leonurus* is forming a full complement of flower-whorls as is *Sparmannia africana*. *Clerodendron fritidum* and *C. trichotomum* are in splendid flower, as are *Cassia corymbosa*, *C. floribunda*, and *Abutilons* Golden Fleecy and *Thompsonii*. *Capparis inermis* has been blooming for a considerable time. *Correa viridis* was conspicuous on an arch in the open border and climbing up the house. It is just now coming well into flower. *Cestrum elegans* and *Manettia bicolor* are also making a fine display of bloom. *Sutherlandia frutescens*, *Sapiglossis sinuata*, a great number of *Fuchsias* of many sorts, including the very desirable *syringeflora* from Mexico and *Boliviana hybrida*, are all masses of blossom, and have been so for a very long time. *Calandrinia grandiflora*, from Chili, has also been bearing its rosy flowers about 2 inches across very freely. *Clematis tangutica* has also flowered well for some time." Notes on this interesting garden have appeared in the *Gardeners' Chronicle* from time to time. *Wendell Fitzherbert.*

PRIMULA FARINOSA.—In your report of the Scientific Committee of the R.H.S. of November 7, on p. 331, it is stated that Mr. Gordon observed plants of *Primula farinosa* in the Alps "with a distinct white centre," all subsequent flowers approaching more or less directly to the typical form. With such evidence at hand, I should regard the early flowers noted as in the nature of a "sport," that may, or may not, reappear an other year after the manner of sports. Should the variation reappear, I would suggest that all other flowers be at once discouraged, and that those with the white centre be fertilised with their own pollen. If this be done, a certain proportion of the progeny will, in all probability, be similarly characterised, but, if not, it would be worth continuing a year or two longer to raise seedlings in the hope of reproducing the interesting variation referred to. *Primula farinosa* is easily raised from seeds, and it is to be hoped that Mr. Gordon has already secured seeds of his plant, since the tendency to sporting in these plants is not an everyday occurrence. *E. H. Jenkins.*

A GARDENERS' CONFERENCE.—The need for an association or union of professional gardeners is stronger now than it ever was. Attempts have been made to establish such a union, but from causes that are too difficult to focus they have missed their object, and we are still "seeking a way, yet wandering from the way." There was some prospect that the British Gardeners' Association, in the early stages of its career, might come in time to achieve this purpose. With the late Dr. Masters as sponsor and a representative set of men as the executive, it looked like winning its way and gathering into its fold all the good men of the profession. It has failed to do this, notwithstanding its membership of some 2,000, its journal, and its well-intentioned efforts. One hears on all sides that gardeners must combine to get strength, yet the great majority decline to support the B.G.A. I am convinced that the B.G.A. went astray when it renounced the articles of its first plea and prospectus. It has been on the wobble ever since, and wobblers in a cause have no chance. My present object is not to belittle the present executive of the B.G.A., but rather to excuse it. Fear led to doubt, which was succeeded by vacillation, and this is the way to dissolution. It is largely due to the attitude of employers, who see what they take to be danger in a combination which declares its intention to be the betterment of the conditions of employment of the professional gardener. I am afraid we cannot blame the employers. No man will pay more than the market rate for any commodity or service, and he looks with suspicion upon any combine which has for its object the raising of prices, even although the rise in price may be accompanied

by a very small party. That, in the case of gardeners, is the complement of the other, must be evident to the man who can think. It is not easy to make both sides understand this, but it has to be done. Can we manage to induce gardeners to meet and confer next year at the time of the International Horticultural Exhibition, with a view to forming a national institute or union or federation or association (the name does not matter, "the play is the thing")? I will not attempt to indicate what the line of procedure might be; I only feel that the present need is to set gardeners thinking what could be done by following the example of all great bodies of workers. If a meeting could be arranged for the purpose of deciding what course would be best—a meeting of a dozen or twenty or fifty representative men—some time before the end of the present year, a programme or policy might be formulated. The difficulty is to get at the right kind of man. Gardening is a worthy calling, a fact which the crowd fails to realise. It is our own fault if we neglect to lay claim to the respect which is the due of every body of men who have qualified for a position of trust and requiring skill of no mean order. Horticulture is an art which owes much of its present high position among the great industries to British workers, and it is meet that those who practise it should see that they get their due. W. W.

SOCIETIES.

ROYAL HORTICULTURAL

Scientific Committee.

NOVEMBER 21.—*Present*, Mr. E. A. Bowler, M.A., F.L.S., F.E.S. (in the Chair); and Dr. J. A. Voelcker, Rev. Canon Fowler, Messrs. J. O'Brien, A. Worsley, W. Hales, J. T. Bennett-Poe, W. C. Worsdell, E. M. Holmes, W. Cuthbertson, and F. J. Chittenden (hon. sec.).

Raspberry beetles.—The Rev. Canon FOWLER showed specimens of the Raspberry beetle, *Byturus tomentosus*, which feeds in the flowers of Raspberry, Blackberry, Loganberry, and Strawberry, remarking that in all probability the pest pupates in the soil, and not so much in old stems, &c. He considered that if some measure of reaching the pest in the soil could be devised it would prove very beneficial, but after some discussion the Committee thought that none of the methods at present economically available would be entirely suitable in the present instance. It was remarked that some success had been attained in dealing with this pest by shaking the canes over tarred boards and by spraying with lead arsenate during the time the plants were in bloom.

Unusually fruit.—A BAYLON, Esq., sent from Dawlish, Devon, a bunch of about 16 fruits (on one branch) of *Mandevilla suaveolens*, and a pair which measured 20 inches in length; a bunch of seed pods of *Wistaria japonica* from a standard on its own roots which bore several dozen fruits (W. multijuga was also fruiting in the same garden, and had produced racemes 30 inches to 36 inches in length); a spray of many fruits of *Cornus capitata* (*Berchemia fragifera*) from a very old tree 26 feet in height. The seeds of *Cornus capitata* are picked from the fallen fruit by the blackbirds and dropped about the grounds. R. SHAFTO ADAIR, Esq., of Clauville, Minehead, Somerset, sent two excellent fruits of the common Pomegranate, perfectly ripe, and open to show the seeds, picked from a plant growing on a south wall.

MR. A. S. HORNE, B.Sc., of the Wisley Laboratory, exhibited specimens in illustration of the following notes:—

Streaked Potatoes.—In 1910 samples of seed Potatoes of the Duke of York variety was obtained from a dealer in the North of England. When the tubers were examined about 20 per cent. of them were found to be affected with

streak disease. Several diseased tubers, however, were not included in the estimate. These were rotten in the middle, and the flesh was more or less excavated, the cavity or cavities being enclosed by diseased tissue. It was supposed at the time that this condition was due to some other cause. During November, 1911, however, a complete series of stages has been obtained between streaked and rotten tubers of the same variety of Potato. The following stages in the development of streak disease in the Duke of York variety were sent for inspection:

1. Potatoes marked internally with streaks as described in the *Journal of Agricultural Science*, iii., September, 1910.

2. Potatoes with internal brown rot. Upon closely inspecting the flesh the rotten area is seen to be made up of a number of concentric curved brown lines; the rotten appearance is due to the fact that the lines are very numerous, and almost in contact with one another. The lines show up well when a slice of the Potato is soaked in potash.

3. Potatoes with cavities in the flesh which are bounded by a brown zone of diseased tissue.

4. Potatoes similarly diseased, but having external injuries.

The diseased Potatoes were raised in Scotland with the co-operation of Mr. W. G. McGOWAN in connection with Potato investigations, of which an account has not yet been published. The seed Potatoes of the Duke of York variety were obtained from a locality in which streak disease is at present unknown, and were free from disease when planted.

LEE, BLACKHEATH, AND LEWISHAM HORTICULTURAL.

NOVEMBER 24.—At the meeting of this society, held on this date at the Church Street Schools, Mr. F. Phillips gave a lecture on "Hardy Fruits and their Culture." The meeting was well attended. Mr. Freeman Fox occupied the chair. In dealing with Red, White and Black Currants and Plums, Mr. Phillips recommended the pinching of the tips of the young shoots in summer, this causing fruit-buds to develop at the base. He advised a dressing of lime once a year for Plum trees, his practice being to give this in the winter months. This also applied to all other stone fruits, whether grown indoors or in the open. In the summer-pruning of Apples and Peaches he did not advise cutting the growths short; his method was to just break the tips of the growth off when a length of 6 or 8 inches had been formed. In preparing fruit plantations, Mr. Phillips said too much attention could not be paid to the provision of efficient drainage, as a healthy root system was the chief essential in successful fruit culture. He said he made a practice of placing tiles or bricks at the bottom of the holes where strong-rooted trees were planted, thus checking the roots from growing downwards and encouraging the growth of the more fibrous roots near to the surface.

THE MARKET GARDENERS', NURSERYMEN, AND FARMERS' ASSOCIATION.

The annual general meeting of this association was held last week, Mr. Wm. Poupard, President, in the Chair. The chairman having reported on the work of the association during the past year, and the hon. treasurer having presented the yearly balance sheet showing the sound financial position, the officers were elected for the ensuing year as follows:—

President, Mr. Wm. Poupard; vice-president, Mr. W. G. Lobjoit; hon. treasurer, Mr. G. Monro; auditors, Mr. W. Maxwell and Mr. F. W. Clifford. Messrs. Geo. Miller, John Poupard, R. R. Robbins, John Cull, and J. Lewis Mann were elected members of the general committee.

Matters of interest to the trade which had already been before the general committee, including the basis of rating of glasshouses, the adoption of a uniform system of weights and measures, the Market Gardeners' Compensation Act, and the damage caused to land and crops by aviators, were discussed, and resolutions thereon adopted.

EASTBOURNE HORTICULTURAL.

NOVEMBER 8 and 9.—The annual Chrysanthemum show of this society was held in the Floral Hall of the Devonshire Park on these dates, there being a record number of competitors.

In the section devoted to cut flowers, Mr. W. EVANS, Haywards Heath, was successful in the class for 24 Japanese varieties, and also in a smaller class for 12 varieties of the Japanese type, the Earl of ASHBURNHAM, Battle (gr. Mr. G. Grigg), securing the 2nd position in both classes. Captain T. F. SWINFORD, Eastbourne (gr. Mr. C. Sheppard), excelled in the class for six blooms of a white or yellow variety; 2nd, Miss RAMMELL, Boston House (gr. Mr. W. H. Skinner), who excelled in the classes for six blooms of any one colour other than white or yellow, and for six blooms of the Japanese type. The best group of Chrysanthemums was shown by G. MATTHEY, Esq., Rosemount, Eastbourne (gr. Mr. G. H. Lydiard).

Gold Medals were awarded to Messrs. H. G. WHITE & Co., Eastbourne; Mr. JAMES BOX, Lindfield; and the Duke of DEVONSHIRE, Compton Place, Eastbourne (gr. Mr. Thompson), for non-competitive exhibits.

WINCHESTER CHRYSANTHEMUM.

NOVEMBER 14, 15.—This annual show was held in the Guildhall, Winchester, on these dates, and although the exhibits were not quite so numerous as last year, there was a good display. Chrysanthemum plants suitable for decorative purposes were a feature at Winchester, and attention is paid to the high quality rather than the number of the flowers. Japanese and incurved blooms are always good at this show, the late date suiting those of the latter type. Small-flowered varieties grown without being disbudded make a fine display, and the competition in the classes for these is exceedingly keen. Fruit and vegetables were well represented.

PLANTS.

Groups of Chrysanthemums were not numerous, but those that were staged were satisfactory. M. HODGSON, Esq., Winchester (gr. Mr. A. J. Marsh), was awarded the 1st prize for rather tall plants carrying good blooms and foliage neatly arranged. H. JOHNSON, Esq., Northgate Place, Winchester (gr. Mr. Pearce), was placed 2nd, his plants being dwarf, much more freely-flowered, and consequently the individual blooms were smaller.

In the class for nine dwarf plants, each specimen to have not fewer than five blooms, four competed. J. A. FORT, Esq., The College, Winchester (gr. Mr. G. Cousens), won the 1st prize with plants carrying excellent blooms and good foliage. F. S. VALLIS, Bessie Gellie, W. Mease and Mrs. Jud on were worthy varieties; 2nd, Col. DICKENS, Edge Hill, Winchester (gr. Mr. G. Adams). For nine plants of any white or yellow varieties, F. A. FORT, Esq., again led with finely-flowered plants of such sorts as *Enblème Poitevine*, Mrs. Judson, F. S. VALLIS and Mme. R. Oberthur; 2nd, Capt. CLAYTON MITCHELL, West Highlands, Winchester (gr. Mr. C. White). M. HODGSON, Esq., had the most profusely-flowered plants of decorative sorts in *Caprice du Printemps*, Kathleen Thompson and Mme. R. Oberthur.

CUT BLOOMS.

The most important class was for 24 blooms of Japanese varieties in not fewer than 18 varieties. The premier exhibition was from the gardens of Mrs. G. CLARKE, Frensham Place, Farnham (gr. Mr. C. Moore), the varieties including *Leslie Morrison*, *Duchess of Sutherland*, *Bessie Godfrey*, *Frances Jolliffe*, the Hon. Mrs. Lopes, *Evangeline*, *Mary Farnworth* and *Master David*; 2nd, M. HODGSON, Esq. Mrs. G. CLARKE was again successful for a dozen varieties of the Japanese type with well-grown specimens; 2nd, Admiral the Hon. W. G. STOPFORD, Ashe House, Overton (gr. Mr. F. Neville). In the class for three blooms each, of six varieties of the Japanese type, M. HODGSON, Esq., secured the premier place with fine, shapely blossoms; 2nd, Mrs. G. CLARKE.

Prizes were offered for five flowers of any white variety. Mr. HODGSON was again placed 1st in this class, showing superior flowers of *Evangeline*; 2nd, J. RIDLEY SHIELD, Esq., Cardew, Alresford (gr. Mr. F. Rome).

Incurved varieties were a distinct feature of the show. In the class for 24 blooms, no not fewer than 18 varieties, M. HODGSON, Esq., was awarded the 1st prize, showing large, shapely examples of Mrs. J. Wynne, Clara Wells, Edwin Thorp, Pantia Balli, Mrs. R. H. Hall, Godfrey's Eclipse, Mrs. G. Denyer, Romance, Frank Treston, and Emblem Pottery. Mrs. G. CLARK was placed 2nd with smaller blooms. M. HODGSON, Esq., obtained the leading award for 12 varieties, showing shapely examples of popular varieties, 2nd, W. GARTON, Esq., Salisbury Court, Southampton (gr. Mr. D. Edwards).

Single-flowered varieties were well shown. M. HODGSON, Esq., showed the best of six exhibits in the class for six bunches not disbudded, large blooms being displayed of the pure white Mensa and the pink W. Beckham. 2nd, G. H. KITCHEN, Esq., Compton, Winchester (gr. Mr. G. Grant). Exhibits in a class for decorative varieties, also not disbudded, in six bunches, were contributed by nine exhibitors, Mr. A. E. TAYLOR, Hillside Terrace, Winchester, showing the winning exhibit with good blooms loosely and effectively arranged, including such varieties as Glitter (pure white), John Shrimpton (red), Soleil d'Octobre (pale yellow), and Ivory (dull white); T. C. WILSON, Esq., The Thickets, Bishop's Waltham (gr. Mr. G. Barnes), securing the 2nd place with fine blooms.

The fruit section was interesting. For two bunches of Black Grapes, W. H. MYERS, Esq., Swannore Park, Bishop's Waltham (gr. Mr. G. Ellwood), was placed 1st with Alnwick Seedling, ELLEN Lady SWAYTHLING, South Stoneham House, Southampton (gr. Mr. T. Hall), led in the class for dual bunches of any White Grape, showing Mrs. Pearson. There were 14 entries in the class for four dishes of dessert Apples, Mrs. KNOX, Holt Hatch, Alton, winning the 1st prize with well-coloured examples of Cox's Orange Pippin, Ribston Pippin, Blenheim Orange and Alington Pippin. In the class for four culinary varieties, J. LIDDELL, Esq., Sherfield Manor, Basingstoke (gr. Mr. W. Learmouth), was awarded the 1st prize.

Vegetables were a strong feature of the show. W. H. MYERS, Esq., won easily in Messrs. Toogood & Sons' and Messrs Sutton & Sons' classes for six varieties.

Amongst non-competitive exhibits, Messrs. E. HILLIER & SON, Winchester, staged Carnations in pots, and other flowering subjects effectively arranged with Palms, also a collection of highly-coloured Apples (Gold Medal). W. H. MYERS, Esq., showed four dozen dishes of highly-coloured Apples (Silver Medal). Mr. S. FAY showed Carnations (Silver Medal). Mr. F. BEALING, The Nurseries, Bassett, Southampton, exhibited single Chrysanthemums (Silver Medal).

LANCASTER CHRYSANTHEMUM.

NOVEMBER 15.—The sixth annual exhibition of the Lancaster and District Horticultural Association was held at the Alexandra Hall, Lancaster, on this date. The entries, about 100 more than last year, numbered 311, which established a record. Interest centred in the non-competitive groups, which, though their number showed no increase, were characteristic of the best traditions of Chrysanthemum culture in the district. The President, Lord ASHTON, exhibited a group that was remarkable for the variety, colour and finish of the blooms. The latter included specimens of Henry Perkins, Mrs. Knox, J. W. Molyneux, Master David, Master James, F. S. Vallis, Mrs. H. Lones, and other well-known varieties. The gardener is Mr. W. Black. H. L. STOREY, Esq., showed a collection of Codieums (Crotoms), Dracenas, Begonias, and Balsams, displayed in parterre design by the head gardener, Mr. Roberts, while the LANCASTER CORPORATION was represented by a very creditable show of Chrysanthemums, Salvias, and other plants, arranged by Mr. J. DEARDEN, gardener at Williamson Park. Mr. W. MITCHELL, of Belle Vue, exhibited an interesting group of Lord Chrysanthemums. In the competitive classes the challenge cup presented by Lord Ashton was won for the third time in succession by Mr. J. W. PICKARD, who with Mr. HELME, M.P., Mr. E. STOREY, and Mr. W. BRIGGS were the winners in this class, while in the other plant classes prominent exhibitors were Mr. E.

G. CLARK and Mrs. GARNETT, Sheffields. The cut bloom classes contained the largest number of entries. Miss PETTY, Ulverston, won the "Lady Storey" rose bowl for 12 varieties of Japanese blooms, and shared the honours in several other classes with Mrs. PORRITT, Mr. T. N. THORNTON, and several local growers.

WOMEN'S AGRICULTURAL AND HORTICULTURAL INTERNATIONAL UNION.

NOVEMBER 15.—The annual general meeting of the members of this society was held on this date, in the Indian Museum, Park Lane. Lady Willington presided, and delivered the opening address, in which she set forth the objects of the Union. Reports were read from the general secretary, Mrs. T. Chamberlain, the educational secretary and the treasurer, as to the work carried out during the past year. Two important changes are contemplated during the coming year—the removal of the central offices to a more convenient site in Westminster, and the holding of the principal exhibition next year, on October 12, at the Royal Horticultural Hall, Westminster, instead of at Regent's Park.

Mrs. Gould Dale (Ontario) gave an address on "Horse Breaking and Training," and Professor Bottomley gave a lecture on "Hybridisation."

LINNEAN SOCIETY.

NOVEMBER 16.—Dr. Reginald R. Gates, M.A., Ph.D., gave the main outlines of his paper, communicated by Dr. Marie Stopes, on "Certain aspects of the Mutation Problem in *Eurothera*." He stated that

Work with the *Eurotheras* has developed in several directions, all bearing on the general question of the place to be assigned to mutation as an evolutionary factor. A concerted attack upon the behaviour of the *Eurotheras* in heredity and variation from several points of view, gives a broader basis for the interpretation of the evolutionary significance of these phenomena than has hitherto been possible in most other genera.

The cytological evidence has shown that in most of the mutants from *Eurothera Lamarckiana* the chromosome number is unchanged, but in the mutant *E. gigas* it is doubled. Hence mutants originate in various ways. Evidence goes to show that the chromosome doubling in *E. gigas* probably occurred either in the fertilised egg, or in a megaspore mother-cell which afterwards developed apogamously.

On the other hand, in certain cases the mutational change probably occurred during the reduction divisions. Thus, *E. rubricalyx* is a mutant from *E. rubrinervis*, which produces an extreme amount of pigment; and when crossed with the parent type the new character behaves as a Mendelian dominant, and in such a way as to show that the original mutant individual was heterozygous and probably originated from a cross between a germ-cell in which the new dominant character appeared, and one in which it was lacking.

From this and much other evidence, mutation in *Eurothera* appears to be due to a general condition of germinal instability, which in turn is probably connected with crossing in the ancestry. This, however, by no means deprives it of evolutionary significance, for all open-pollinated species of plants are hybrids in the sense that various races have participated in their immediate ancestry.

Certain results were also communicated, of *E. grandiflora* × *E. rubricalyx*, *E. Lamarckiana* × *E. grandiflora*, and other crosses which produce twin types.

Mr. G. Claridge Druce, in his exhibition entitled "Some Floristic Results of the International Phytogeographic Excursion through the British Isles" during the past summer, gave an account of the places visited during the five weeks spent on the tour, and touched on the species and varieties discovered.

Mr. Arthur W. Hill showed drawings of a viviparous specimen of *Juncus bufonius*, in which the seedlings were seen emerging from the parent capsule.

Mr. N. C. Macnamara contributed some remarks on "Mutations in Foxglove Plants," which was communicated by Prof. A. Dendy, and read by the General Secretary.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

NOVEMBER 16.—Committee present: Rev. J. Crombleholme (in the Chair); and Messrs. R. Ashworth, J. Bamber, W. R. Lee, C. Parker, H. Thorp, Z. A. Ward, J. C. Cowan, J. Cypher, J. Evans, W. Holmes, A. J. Keeling, and H. Arthur (secretary).

W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse), exhibited a group of plants to which a Silver-gilt Medal was awarded, containing very choice forms of *Odontoglossums*, *Cattleyas*, and *Cypripediums*. Many of the plants received Awards.

Z. A. WARD, Esq. (gr. Mr. Weatherby), also exhibited an excellent group, and was awarded a Silver-gilt Medal, an especial feature being numerous varieties of *Cypripedium* insigne.

O. O. WRIGLEY, Esq., Bury (gr. Mr. Rogers), again staged a magnificent exhibit of more than 250 plants, *Cypripediums*, comprising all the yellow varieties known in cultivation.

J. McCARTNEY, Esq., Bolton (gr. Mr. Holmes), was awarded a Silver Medal for a group, which included *Cattleya labiata* Mrs. J. McCartney and C. Bowringiana "McCarty's" var.

Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall), staged a very pretty group of *Cypripediums*, tastefully arranged with small Ferns and Palms. A Silver Medal was awarded.

Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), was awarded a Bronze Medal for a group of *Cypripediums*.

G. H. PEACE, Esq., Monton Grange (gr. C. Mace), was also awarded a Bronze Medal for a group of *Cypripediums*.

J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson), staged a fine plant of *Odontoglossum ardensissimum* var. *Johnsonii*, carrying two spikes of flowers $\frac{3}{4}$ inches across, and other choice Orchids.

Messrs. J. CYPER & SONS, Cheltenham, were awarded a Silver Medal for a general collection of Orchids.

Messrs. STUART LOW & CO., Bush-hill Park, staged a miscellaneous group, to which a Silver Medal was awarded, *Cattleyas* and *Cypripediums* being well represented.

Messrs. HASSALL & CO., Southgate, were awarded a Silver Medal for a meritorious group of *Cattleyas*, *C. labiata* and hybrids of the *Iris* section, with a few choice *Cypripediums*.

Mr. JOHN ROBSON, Altrincham, staged a few yellow varieties of *Cypripedium* insigne and a choice hybrid (*Leeanum* *Clinkaberryanum* × *Memnon* *giganteum*).

Mr. W. SILLINGTON, Great Horton, Bradford, staged *Cypripediums* *Niobe superbum*, *Memnon*, *Queen Alexandra*, and an unnamed seedling.

Mr. H. ARTHUR, Blackburn, staged *Oncidium Forbesii*, var. "nigrum" (a very dark form), *Cymbidium erythrostylum*, and *Cypripedium* Baron Schröder.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Fuchsii var. "Imperator," a fine flower with golden lines in the lip; *C. labiata* var. "Virgo Purissima," a large white flower with pale yellow markings in the throat; *Odontoglossum Chione*, the chocolate-coloured segments tipped with white, the lip broad and flat; all these shown by W. R. LEE, Esq.

O. ardensissimum var. "Johnsonii," a specimen carrying two spikes of magnificent flowers each $\frac{3}{4}$ inches across, from J. J. HOLDEN, Esq.

Cypripedium Overlainii (*Pudlowianum* × *Leeanum* Corona), a large, well-balanced flower, from R. L. OVERTON, Esq.

AWARDS OF MERIT.

Cattleya Portia var. "Imperator," a large, round flower of good even colour, and 4 inches across; *C. labiata* "Genevieve," a white flower with faint markings in the lip; *C. Iris* var. "Corianda" (bicolor *Grossii* × *Dowiana*); *C. Myranda* "Leuco" var. *Lilac*; *Cattleya Clara* "Pudlow Hill" var.; *Odontoglossum Antiope*; *O. Hermione*, very distinct and of good form; *Cypripedium Arthurianum* var. "Sanderæ" (*Arthurianum* × *insigne* Sanderæ), a flower showing the parentage on both sides; *C. Charlesworthii* var. "Prestonensis"; all these from W. R. LEE, Esq. *C. Pearl Beauty* (Milo × *Nitens Charlesworthii*), from

Committee of the R.H.S. Both the Primrose and the P. luteus came in for a good share of his attention. Some years back he was one of the best growers and exhibitors of Hyacinths, his plants being models of good culture. So also did he excel with Tulips. He was, I believe, a master of seedling Narcissi, of which bulbs he cultivated a choice selection at Great Bookham. He was an expert on the Pansy, and his great knowledge of the flower was apparent when I have acted as judge with him at the northern Pansy exhibitions. He was also keenly interested in Roses. In fact, it would be a difficult matter to point out any florist's flower that has not, at some period of his career, been the subject of his careful attention. He was called upon to act as a judge at most of the more important exhibitions in the country, and in this capacity I have been his colleague upon many occasions. The exhibit of Pansies by a pitman in the north would receive as much attention from him as a large exhibit of Carnations shown by some prominent grower. At the Newcastle-on-Tyne Show he had officiated as judge for a quarter of a century. For some years Mr. Douglas was a member of the Council of the Royal Horticultural Society, and on his retirement it was my privilege to be elected in his stead. He was also an active member of the Committee of the Gardeners' Royal Benevolent Institution. Besides being a prolific contributor to the horticultural Press, he was an active worker in other walks of life. One of his sons lost his life in the Boer War, and another son has been connected with the florist's business at Bookham. The funeral took place at Leatherhead on Wednesday, the 29th ult. *James Hudson.*

It was whilst engaged for many years as gardener to Mr. and Mrs. Whitburn, at Great Gearies, Ilford, that Mr. Douglas showed his consummate skill as a cultivator. He seemed to be possessed with every kind of plant he took up, for, whether plant, flower or fruit, everything he cultivated was always of the best. For many years he was examiner with the Rev. Professor Henslow of the candidates of the Royal Horticultural Society's general examination, and only recently he resigned that office. At Great Bookham Mr. Douglas was able to show his great ability in the culture of Auriculas and Carnations, and no one excelled him as a cultivator of these old florists' flowers. His nursery also contained a fine collection of Narcissi, and the bulbs succeeded well in the somewhat retentive soil of Bookham. But with Auriculas and Carnations he was indeed a master, and visitors to the Vincent Square meetings are familiar with the magnificent exhibits of these flowers staged by him. Mr. Douglas was not only a skilful cultivator, but also a great raiser of new varieties. His love for the Carnation was well known, and the new sorts he raised were all of the true florists' type. Both the National Auricula and the National Carnation Societies have lost one of their most powerful supporters and exhibitors in the death of this distinguished man. *Alex. Dean.*

The following details of Mr. Douglas' life are kindly furnished us by a member of the bereaved family. He was born at Ednam, a little village near to Kelso, in 1837, and commenced his gardening career at Mr. Andrew Tait's nursery, at Kelso, as an apprentice, though it was his parent's wish that he should enter the ministry. In 1860 Mr. Douglas was appointed head gardener to Mr. Whitburn at Great Gearies, Ilford. About the year 1889, the late Mr. Martin Smith invited Mr. Douglas to accompany him to M. Benary's nursery, at Erfurt, Germany, with a view to procuring the best of what Benary had in selfs and fancy Carnations. These Douglas selected, and they formed the basis of Mr. Smith's noted collection at Hayes. The first seedling varieties introduced to commerce afterwards were self-coloured flowers (1893), Abigail, Niphetos, Lady Gwendoline, and others. But decided developments had occurred before the late Martin Smith began his work. The first of the yellow-grown Picotees had been introduced in 1858, Prince of Orange being the earliest named variety. The late Charles Turner raised seedlings from this flower, and out of his selections, Mr. Douglas succeeded in raising the first true Picotee-edged variety, which was named Agnes Chambers. Another variety was named Mrs. Robert Sydenham. Not until

Elaine (a border self) was shown, in July, 1888, did Mr. Douglas obtain a Certificate from the Floral Committee of the Royal Horticultural Society for any of his novelties in Carnations. Souvenir de la Malmaison, as well as border varieties, received attention at his hands. For 21 years Mr. Douglas was honorary secretary and treasurer of the National Auricula Society and the National Carnation and Picotee Society. The first suggestion of a Carnation society for the south appears to have arisen in the minds of Mr. E. S. Dodwell and Mr. Douglas, after a visit these gentlemen paid to a show in the Botanical Gardens, Manchester, on August 10, 1875, in consequence of the uncertainty as to the action of the R.H.S., which had previously held a London Carnation show. A meeting was held on January 31, 1876, and at this meeting the National Carnation Society was established. Mr. Douglas was one of the members of the now-defunct Pelargonium Society. His first literary contribution was on the subject of the Cineraria, published in the *Cottage Gardener*. On the death of Robert Fish, Mr. Douglas wrote the "Doings of the Past and Present Week" for the *Journal of Horticulture* for some considerable time. Mr. Douglas was the author of *Hardy Florists' Flowers: Their Cultivation and Management* (1880). On his retirement from the Council of the R.H.S., he was awarded the Victoria Medal of Honour. He was also a member of the executive committee of the Gardeners' Royal Benevolent Institution. His chief recreations were his books and the study of old china. Of the latter he possessed a rich collection. His library is singularly complete in floricultural works. It includes a complete set of the *Botanical Magazine*, Edwards' *Botanical Register*, the *Floricultural Cabinet*, the *Transactions of the Royal Horticultural Society*, and till recently, Gerard's, Parkinson's, and other *Herbals*. Only last year Mr. Douglas contributed to a volume entitled *Carnations in the Present-Day Gardening series*.

ANDRÉ ARRANGER.—The many friends of Monsieur Charles Arranger, secretary of the *Jardin et Petit Jardin Illustré*, will learn with regret the death, on the 23rd ult., of his son André, at the age of 19. M. André Arranger was a pupil of the National School of Horticulture at Versailles.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending November 29.

A cold and dry day. Throughout the last 10 days there has been a steady and general fall in the temperature, and the weather has been decidedly drier. The temperature in the morning was 48° F., which is a very low maximum reading for November, and on four nights the exposed thermometer registered from 32° to 34° F. The ground temperatures have been, and continue to be, at 2 feet deep was 29° F., and at 1 foot depth 27° F. On the 29th day, rain, snow or sleet fell on four days, but the total measurement amounted to less than one quarter of an inch. No measurable quantity of rain-water has come through either of the rain-gauges at Knebworth in the last five days. The sun shone on an average for 1 hour 35 minutes a day, which is about the usual duration for the end of November. The winds were as a rule light, and for the first five days came almost exclusively from some point of the compass between north and east. There was about a seasonable amount of north wind on the 29th. *F.M., Knebworth, November 29, 1911.*

ANSWERS TO CORRESPONDENTS.

ABIES NOBILIS. *F. G. Freeman.* The tree, of which you send a specimen, is *Abies nobilis*. The cracked condition of the trunk which you describe has been reported from other parts of the country during the present autumn, and has been put down to the unusual heat of the late summer. In some cases the cracks extend into the wood. The only thing you can do is to paint the crack with a little tar, in order to prevent fungus-spores from entering. You cannot do any harm by giving the ground about the tree a good watering, as you say that it is still very dry. A mulch of leaves may do good. This tree is, however, in some parts of the country, very subject to attacks from aphids, which cause gall-like swellings on the branches, and it is probable that your tree is affected in this way. This would explain the reason for the leaves falling. Spraying with

a paraffin wash during May and June is to be recommended.

APPLE PRUNING. *G. R.* The Mussel scale (*Mytilaspis pomorum*) is present on the shoots in large numbers. The trees should be syringed in autumn and winter with kerosene emulsion, or, better still, with the "Woburn" wash. This is made as follows:—Take sulphate of iron (coppers) or sulphate of copper (blue vitriol), 1½ lb.; quicklime, 6 ounces; paraffin, 5 pints; caustic soda, 2 lbs.; and water, 9½ gallons. Dissolve the sulphate of iron or copper in the water by suspending it in a bag of sacking overnight; at the same time put the lime in a jar with enough water to not quite cover it. Next day, when the sulphate is dissolved and the lime slaked, add a little more water to the latter to make it into a milk, and pour it into the sulphate solution. Then the paraffin should be added, and the mixture churned with a garden syringe. One or two strokes of the syringe are sufficient to produce a perfect emulsion. Then add the soda, and mix the whole well together. If the soda is in the powdered form it may be added while solid to the water, if in large lumps, dissolve it separately in a portion of the water reserved for that purpose. In applying this wash it is important that it should be done in the form of a fine spray, so that it does not drench the ground or crops underneath, for it would thus cause damage.

FUMIGATING WITH SODIUM CYANIDE. *Andreas.* We are indebted to Mr. F. C. Edwards, nurseryman, Leeds, whose special apparatus for cyaniding was illustrated in *Gardeners' Chronicle*, March 31, 1906, for the following details:—It is perfectly safe to employ the cyanide in a greenhouse when the plants are in a dormant condition, but at other times it must be used with caution. Speaking generally, it is inadvisable to fumigate plants that are making growth or fruit trees whilst the fruits are setting. Hydrocyanic acid gas, in common with other fumigants, if used at full strength, injures young growths of Vines, Roses, Cucumbers, and Tomatoes. It does not, if used judiciously, injure *Pines*, *Dracenas*, *Cycas*, and *Palms*, and most plants with non-succulent leaves. When fumigating, the foliage should be dry, the temperature below 60° F. and the light subdued. The quantity of cyanide necessary to free a house from insect pests depends on the nature of the insects, the plants, and the size of the house. One-eighth of an ounce of sodium cyanide, with a quarter of an ounce of sulphuric acid previously diluted with half an ounce of water to every thousand feet of space, is sufficient to kill the different kinds of aphides, green fly, white fly, &c., but this strength has little effect on mealy bug, red spider, and scale insects. It is advisable to err at first on the side of weakness, carefully noting any slight injury to foliage. Having ascertained the maximum strength which the plants will stand, the house should be fumigated once weekly for three weeks. This will destroy all insect pests. With regard to the cost, it is claimed that the use of cyanide reduces the account for fumigation to about one-eighth.

GROOMING AS A PROFESSION. *L. C. P.* We frequently hear of cases similar to your own where, from reasons of ill-health, young men wish to leave businesses which impose much confinement indoors upon the assistants. At the same time it is certain that those are most likely to succeed in horticulture who acquire a thorough knowledge of the principles of gardening at a comparatively early age. Whether you could get over the difficulties that lack of training imposes upon you, would, of course, depend mainly upon yourself, and circumstances, in some degree. The best chance of getting employment would be in some market nursery or other where you might expect a little wage for doing various kinds of work usually carried out by labourers, but which would bring you into association with the gardening practices of the place. You might apply to nurserymen or market gardeners that you know, or insert an advertisement in a gardening journal. Then, if you get employment, you must make the best of your opportunities, and later determine what special branch you will make your own.

HOME-GROWN AND IMPORTED APPLES: *In retracted.* There are no data for estimating the home crop of Apples. The yield varies immensely in different years, and some trees are too young and others too old to bear any considerable quantity, while others are cider Apples, which do not count. It was only as recently as 1907 that the acreage of Apples was officially returned separately from that of other fruits, and this covered only trees on agricultural holdings in Great Britain in 1910. The acreage was 172,031. The imported Apples in 1860 amounted to 706,000 cwt., and in 1910, 3,242,205 cwt.

HORTICULTURAL TUTION: *G. H. H. W.* The curiosity you complain of is no doubt irritating when attempts are made to satisfy it in the manner you describe. If the gardener or other gentleman intends to coach others for certain examinations, he might at least be expected to draw up his own syllabus without first obtaining syllabuses from other lecturers through ordinary correspondence, and by leading the owners to suppose that they are sending the copies to prospective pupils. Irritating though the circumstances may be, you must try and get what satisfaction you can from the thought that after all the other man's desire for your prospectus is a tribute to your own reputation as a teacher.

INSECTS IN SOIL: *G. W.* The soil was dried up and no insects could be detected. But there were excrecences on the roots of the Begonia, suggesting the presence of eel-worms, which are not visible to the naked eye.

JAPANESE GARDEN: *D. H.* In constructing a Japanese garden, avoid all semblance of formality, or of repetition. Do not, in any sense, attempt to balance one part with another. As the ground at your command amounts to about 560 square yards, you should divide it from the centre into four sections by drawing two lines across that point at right angles. Then endeavour to make each section quite distinct one from the other, yet harmonising as a whole. Keep the centre free from any shrubs or ornament of any kind. In one section arrange for a pool of water, which need not be deeper than 2 feet in any part, with a narrow, informal streamlet issuing from it. A few Water Lilies of the smaller kinds might be grown in the pool, whilst along the bank a few water-side plants, such as *Myosotis palustris*, *Mimulus luteus*, *Senecio Clivorum*, and *Primula japonica*, may be planted. In the stream plant a few water-loving plants, such as *Cyperus longus*, *Zizania latifolia*, *Glyceria aquatica variegata*, and *Caltha* polypetala. Arrange for at least one stone bridge over the streamlet. Let this be approached from the other side by irregular stepping-stones of about 4 inches in thickness; the best stones for the purpose are such as are taken direct from a quarry, without having had any tooling. A Japanese stone lantern might be placed at or towards one corner, possibly the one farthest removed from the entrance to the Rose garden, as shown on your plan. Stepping-stones up to and passing this lantern might be arranged so as to terminate at the extreme boundary. About one-fourth of the remaining area might be laid down as grass. The soil that is excavated in forming the pool and streamlet should be utilised in the formation of at least one mound, where it would have the best effect, or where such a mound would assist in hiding any unsightly view. Upon a mound of this description a few well-known Japanese Conifers might be planted, but not crowded together. One of the best Pines for the purpose is *Pinus densiflora*; the *Benzoin* is also suitable; and one plant of *Trachycarpus excelsus* may be placed in a prominent position. Include, if possible, at least one plant of *Sciadopitys verticillata* (the Umbrella Pine of Japan), say, of about 2 feet in height at the time of planting. This Pine requires peat and an abundance of moisture. A *Wistaria* trained informally up a dead tree stem, or to form a rustic arbour, would give further variety. *Clematis Jackmanii* should also be planted and trained up another tree stump. A few *Bamboos* might be grouped on one side, but these should not be planted before next May. *Arundinaria nitida*, *Phyllostachys nigra*, and *P. aurea* would be suitable. A few Japanese Maples will give a good effect in spring and

autumn. A good evergreen to include is *Fatsia japonica*. Japanese Lilliums should be freely planted.

LANTERN SLIDES: *G. F. M.* If you write to Mr. W. J. Vasey, Broad Street, Abingdon-Thames, or to Mr. John Gregory, 60, Canterbury Road, Croydon, most likely they will supply you with what you require.

LEGAL: *S. 211.* (1) An employer cannot be compelled to state his reasons for giving notice to leave, and, assuming that the notice is in order, you have no claim for wages beyond the date when the notice expires and cannot claim your expenses back to the place from which you originally came. (2) If the plants which you brought with you are still in pots you can take them away with you when you leave, but if you have planted them in the soil you cannot remove them without your employer's permission, in the absence of any custom to the contrary.

NAMES OF FRUITS: *A. F. W. B.* Gooseberry Apple.—*A. H. James*, Annie Elizabeth.—*A. F. W.* A fine fruit of Ribston Pippin.—*R. Jones*, Williams's Victoria.—*H. G. P.* 1, Benrê d'Anjou; 2, Soldat Laboureur; 3, Comte d'Amoy; 4, Marie Louise d'Uccle; 5, Northern Spy; 6, Brabant Bellefleur.

NAMES OF PLANTS: *H. S.* *Twyford* The specimens were insufficient for naming; impossible to name single leaves or barren twigs.—*A. E. Stevens* Common Spruce. *Picea excelsa*. It is not of great value as an ornamental tree.—*J. J.* We do not recognise the variety.—*W. E.* *Arbutus Uuedo* var. *rubra*, also called *A. U. Croomei*.—*J. C.* 1, *Jasminum humile*; 2, *Escallonia* sp. (send when in flower); 3, *E. macrantha*; 4, *Baccharis patagonica*; 5, *Escallonia rubra*; 6, *Akebia quinata*.—*A. C.* American Milk-weed, *Asclepias Cornuti*.—*Orchid*, 1, *Corylogyne flaccida*; 2, *C. corrugata*; 3, *Brassia maculata*; 4, *Lelia longipes*; 5, *Oncidium tetrapetalum*; 6, *Eria convalarioides*.—*Kentley*. *Cypripedium insigne*. The inflorescence carrying two flowers is evidence of good cultivation.—*W. H. S.* *Rhynchosyllis violacea*; generally called *Scaccolabium violaceum* or *S. giganteum* in gardens.—*G. S. P. H.* 1, *Strobilanthes Dyerianus*; 2, *Lycaste Smeana*, which is said to be a natural hybrid, but which, in effect, is a very low form of *Lycaste Skinneri*; 3, *Maxillaria picta*.

PAMPAS GRASS: *W. B.* It is quite safe to move your plant of *Cortaderia argentea*; the first week in April will be a good time to carry out the work. It may either be replanted wholly or divided if required to increase the stock. In transplanting preserve as much soil as possible about the roots, and plant in well worked soil enriched with suitable materials.

POTATOS: *F. E. G.* You can hardly expect to get "floury" Potatoes from land which is rather heavy and cold and, as a rule, lies wet. You will do well to trench the soil now two spits deep, loosening the bottom and applying some good, rough manure at the same time. When planting in spring do not put the tubers deep into the soil; rather lay them on the top, and with the hoe pull the earth up over them until the desired depth or covering is obtained. As you have not obtained satisfaction with varieties like "Up-to-Date," we advise you to try other types. *Langworthy* and *Golden Wonder* usually yield tubers of excellent cooking quality, but the crop will not be half so heavy as "Up-to-Date" or "Factor." There is a late round Potato named "The Provost" which you might also try. It yields heavy crops of good tubers and is quite opposite to the "Up-to-Date" type. On your land it might be excellent.

SWEET PEAS: *W. F.* You have taken the first essential step towards having good Sweet Peas next season by cultivating your ground so thoroughly as 2 feet 6 inches deep. You must sow the seeds in boxes or pots in January or early in February in a frame or cool greenhouse. They should remain there until early in April, when you must plant them out. Good single plants should be planted 18 inches apart in lines. By pinching the centres out of the young plants when about 3 inches tall they will break at the base, and three to five strong growths will start away. These will climb up your sticks or wire and fill up the row well

and yield large flowers with long stems in abundance. After the first flower-buds begin to show colour, regular weekly or fortnightly waterings with liquid manure should be given; this will vary with weather and other conditions. Growths which are inclined to ramble must be tied in with raffia, and no flowers must be allowed to form seed-pods, otherwise they will become small and short-stemmed and ultimately the plants will cease to flower at all.

VINE BORDER: *W. J.* You did not state the age of your vines, or whether they have been giving satisfactory results. The manure you mention would have been better applied to the border after the vines had started into active growth. Remove all the loose surface soil from the border, and then fork the latter to the depth of 2 or 3 inches with a digging fork, afterwards applying, as a top-dressing, a compost consisting of three loads of rich loamy soil, one load of horse-droppings, or well-decomposed stable manure, one load of lime rubble or old plaster, and 1 cwt. of some artificial manure, such as Thomsons' Vine and Plant Manure or Cross's Vine Fertiliser, the whole being well mixed before being spread evenly over the border. On top of this place a layer 3 inches deep of short stable manure, and then give the border a good watering. When starting the vines, surface dress the border with one of the fertilisers indicated above at the rate of $\frac{1}{2}$ lb. to the square yard, and afford water through a rose, so as to wash the substance of the fertiliser down to the roots. Give three subsequent dressings of the fertiliser at the rate of $\frac{1}{2}$ lb. to the square yard, one after thinning of the berries, the second after stoning, and the final one as soon as the Grapes commence to colour. If the vines are growing in an outside border top-dressed with the compost and short manure as described above, cover it with 24 inches thick of fermenting materials, consisting of three parts of tree leaves, preferably of Oak or Chestnut, and one part of stable manure, including the droppings. These materials should be thrown together in a conical heap a fortnight previous to being spread on the border, and turned over twice during the interval to sweeten. The fermenting materials should be renewed two or three times between the time the vines are started and March next. There need be no apprehension of the heat from the fermenting materials injuring the roots; quite an opposite effect will be produced. It will induce the vine roots to push up into the top-dressing, with the most satisfactory results, giving renewed vigour to the vines, and adding to the weight and quantity of the crop. When the covering of dung and leaves is removed, half in April and the remaining portion a month or two later, in order to allow the solar heat to reach the border, the top-dressing, including the 3 inches thick of short manure, will be found to be a network of healthy roots. Any one of the three following books will afford you the information you require—*Manure for Fruit and Other Trees*, by A. B. Griffiths, P.L.D., price 7s. 6d.; *Manure for Garden and Farm Crops*, by W. Dyke, 1s. 9d.; *Manure and the Principles of Manuring*, by G. C. M. Aikman, 6s. 10d. These books may be obtained for these prices, which includes the postage, from our Publishing Department.

VINES: *Mespilus.* We do not think that the presence of the Ferns has anything whatever to do with the disease affecting the vines. The Botrytis disease is not usually termed "rust." "Rusty" Grapes are Grapes which have been rubbed, and as the result of the rubbing have not only lost the "bloom" which should characterise them, but present a rusty appearance, which is not attractive.

VITIS INCONSTANS FRUITING: *F. N.* The Virginian Creeper has fruited freely out-of-doors this summer, so that your plant is not an exception.

Communications Received.—F. W. S.—S. A.—E. P. P.—H. W. S.—W. B. and Sons F. W. S.—Bucks.—F. B.—W. K.—H. E. N.—Perthshire.—J. O'N.—A. W. H.—E. O. W.—O. Illinois.—A. B.—W. J. V.—W. H. D.—W. D.—W. S.—G. C.—Queens.—J. W. T.—A. D.—J. H.—H. W.—W. E.—B.—H. M.—V.—A. C. S.—Hard-wacker Dr. A. H.—A. P. L.—M. P.—Michigan.—E. D. C.—Gaud V. M. D.—M. T. L.—H. N.—A. L.—P. W.—W. H. P.—Ireland.—H. A.—W. G.—B. M.—J. E. B. W.—Herts.—G. B.



THE Gardeners' Chronicle

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A LONDON DAFFODIL SHOW.

THE Royal Horticultural Society has circulated, through its Daffodil Committee, a schedule of the prizes to be offered at the Daffodil show which it is proposed to hold at Vincent Square on Tuesday and Wednesday, the 16th and 17th of April, 1912. The Society's classification of Daffodils, 1910,* is to be followed throughout the schedule.

The classes are divided into four sections. In the first three it would appear that any Daffodils may be shown, subject only to this condition, that they must be legibly and correctly named; while the fourth section is, with the exception of a class for Daffodils introduced into commerce during or since 1907, restricted to seedling Daffodils not yet in commerce. Throughout this section only one flower of each variety is admitted, but in the first three sections the rule in force at the Birmingham show has been adopted, and

three stems of each variety are in most cases required. On the whole, this plan is probably a good one, but it is to be regretted that classes for decorative arrangement of some of the commoner varieties are not included, as such classes might have broken the monotony of the exhibits and provided scope for the exercise of taste and ingenuity in decorative arrangement among the exhibitors. Section I. is the open section, and begins with a class for a collection of 48 varieties, "fairly representing the different divisions." After this come four classes of 12 varieties each, corresponding to the first four divisions of the classification, i.e., trumpets, incomparabilis, Barri, and Leedsii, then nine varieties of Division IX. (the Poeticus section), nine varieties selected from Divisions V., VI., and VII. (hybrids of Triandrus, Cyclamineus, and Jonquilla), nine Polyanthus (Division VIII.), and six double Daffodils.

Sections II. and III. are confined to amateurs, and the classes are substantially similar to those in the open classes, save that the number of varieties asked for is smaller. The only restriction imposed is that the exhibitors in any one of these sections must confine himself to that section and may not compete in any other of the first three sections, e.g., an amateur electing to compete in Section III. may not compete in Sections I. or II., and so on. It may perhaps be assumed that the intention is that the larger growers among amateurs should show in Section II. and the smaller growers in Section III., but there is nothing to provide for this, there is no restriction as to the price of the bulbs flowers of which may be shown in the smaller classes, nor is there anything to prevent the largest growers from selecting the third section and putting up the newest and most expensive varieties in the small classes, and so swamping the small exhibitor altogether. This is precisely the mistake made by the National Rose Society in its early days, when a good deal of discontent among the smaller growers was caused by regulations which permitted the largest growers, if so disposed, to show in the smallest classes.

It is rather curious that only in the third section, probably intended for the smaller growers, do we find any use made of the sub-divisions in the classification. In this section, after a group of 12 varieties we find three classes for trumpets apportioned to the three sub-divisions, a, b, and c; that is, yellow trumpets, white trumpets, and bicolors respectively; two classes for the incomparabilis division with yellow and with white perianths respectively, two classes in the same way for the Barri section, and one each for the Leedsii, Triandrus, Polyanthus, Poeticus, and doubles, three varieties being asked for in each case, and three stems of each, save in the class for Triandrus Daffodils, where one stem only is required.

From the standpoint of exhibitions, one of the best things in the 1910 classification was the collection into a separate division (No. XI.) of the beautiful miniature Daffodils—*N. bulbocodium*, *Triandrus*, *Cyclamineus*, and the like—which are so use-

ful in the rock-garden, and it is somewhat to be regretted that in the drafting of this schedule no place was found for a class for these little gems. However, it is unfair to expect to get all we want at the start, and perhaps this and other things may come later on.

In addition to money prizes amounting altogether to about £60, four cups and some 28 medals are offered as prizes, but the schedule contains a rather curious note to the effect that the R.H.S. will be responsible for the provision of the cups and medals offered, but not for the money prizes, which are to be subscribed "by certain Daffodil lovers" and placed in the hands of Messrs. E. A. Bowles, C. H. Curtis, and W. T. Ware. Those who have long wished for a Daffodil show in the Metropolis owe a debt of gratitude to these gentlemen for the task they have undertaken, for without their disinterested assistance the arrangements for a show could never have been made. Nevertheless, the position is scarcely satisfactory. Subscribers to the fund will have few of the advantages which usually fall to the members of a society under whose auspices a flower show is held. They will have no voice in the election of the officers who control the show or with regard to the arrangements, nor settlement of the competitions, and but little interest in its success or failure, the benefit or onus of which will fall to the R.H.S. The subscription would appear to have a certain eleemosynary character, which is scarcely consistent with the dignity of a society like the R.H.S. If the Society, by means of one of its committees, or otherwise, thinks fit to undertake the show at all, it can scarcely, without loss of prestige, decline responsibility for its own show. The position is unfortunate, but well-wishers both of the Society and of the Daffodil may hope for better things in the future.

Something perhaps may be said of the date proposed for the show. It is, no doubt, a date on which the Society has often held Daffodil shows in previous years, but in those cases it has looked chiefly to the trade and others who grow Daffodils on a large scale. Now, however, it is inviting a different class as well the smaller growers without whose presence in considerable numbers the show must be a failure. For this class the date will be full early, and a week, or even more, later would, in a normal year, probably be more suitable. In the neighbourhood of London it is seldom that varieties of the Poeticus or Poetaz divisions open out of doors so early as April 16, and this is true even of such early-flowering sorts as Chaucer or ornatus among the poets or Aspasia in the Poetaz division. This is just one of the points on which the expression of opinion from members of a society assembled in general meeting might have been valuable.

Notwithstanding the foregoing criticisms, some of which are of minor importance, the schedule presented may be pronounced, on the whole, a good one, and it is a cause for much satisfaction that we are at last to have—in the coming spring—a Metropolitan show of Daffodils. The

* Price 1s. from the Secretary of the R.H.S.

limitation of the number both of varieties and flowers in the different classes—a point for which the late Mr. Bourne was always pressing—is altogether excellent. The drafting of the schedule has evidently been effected with both knowledge and care, and it will be a disappointment to many if it does not produce a show which shall be first-class, both in quality and importance. *Narcissus*.

NEW OR NOTEWORTHY PLANTS.

ULMUS PLOTII* Druce sp. nov.

This tree was first distinguished by Dr. Robert Plot, in his classic *Natural History of Oxfordshire*, published in 1677, where he writes of it as hitherto not described, proceeding to give an account of it as "a narrow-leaved Elm, which also being smooth, justly deserves the name *Ulmus folio angusto glabro*, wherein it differs not only from the *Ulmus minor* of Parkinson and Gerard, but also from their *Ulmus folio glabro*, whose leaves they say are nothing so large as the *Wych Hazel*, but nearest in bigness, and exactly the figure of the common Elm; whereas ours are much less and of quite a different figure, being narrow and having a peculiar kind of pointed ending as exactly expressed in tab. 10, fig. 1. Of those there are plenty in the avenue to the house of the Honourable the Lady Cope, the relict of the most ingenious Sir Anthony Cope, of Hanwell, where there is a whole walk of them planted in order, besides others that grow wild in the coppices of the park."

Ulmus Plotii Druce is of a singularly graceful and beautiful habit. It still grows near Banbury, and is also found in the counties of Northampton—where I have recorded it as *Lock's Elm* (*U. sativa* var. *Lockii*)—Lincoln, Bedford, Cambridge, Huntingdon, and Essex, although the avenue at Hanwell is now composed of the English Elm. The characteristic figure of the leaf in Plot's *History*, however, shows without doubt that his tree is identical with the tree illustrated in figs. 165 and 166, and which I venture to designate by his name.

Miller, in his *Gardeners' Dictionary*, 1768, describes six species of Elm, of which only two could be held to cover this. One, *U. minor* (the smooth, narrow-leaved Elm, by some called the upright Elm), evidently refers to the Cornish Elm, a tree of strict habit; the other is *U. sativa*, an Elm, with oval, acute-pointed leaves, which are doubly sawed, and unequal at their base = *U. minor*, *folio angusto scabro* Gerard Emac, 1480. The small-leaved or English Elm, which he says "is not a native of England and is only found growing near London; or in plantations where the young trees were procured from the neighbourhood of London. . . . As this tree is well known, it requires no description." He also says that compared with *U. minor*, the latter has leaves narrower, more pointed and smoother, which is not the case with Plot's Elm. These statements of Miller's surely cannot be held to describe this beautiful tree, which Plot speaks of as being wild in the coppices in Oxfordshire, and distinctly says differs from the *U. minor* of Gerard. Of *U. minor* Gerard says "it is like the others, but much lesser and lower; the leaves are usually 2½ inches long, and an inch or an inch and a quarter broad. . . . and are harsh and rough on both sides." The leaves of Plot's Elm are not so long or broad, 2 inches by 1 inch being the usual size, are more acuminate, and they are not rough above. The tree, too, grows to a considerable height—sometimes over 80 feet—as will be seen by the specimen illustrated in fig. 165. It is a beautiful species, and well deserving a place in parks for its ornamental character. *G. Claridge Druce*.

* *Arbor elevata, cortice glabro, ramis attenuatis, foliis parvis, angustis acuminatis, glabris.*

THE MARKET FRUIT GARDEN.

EIGHTEEN rainy days in November followed 14 in October, and 5.89 inches followed 6.11 inches, making 12 inches for the two months, or only 0.18 inches less than the total for the nine months ended with September. These are the records of my station, and they are certainly striking as illustrations of drought and flood. No doubt similar comparisons could be furnished from many other localities. Fortunately, no rain of any consequence fell in my district in November after the 18th, the principal precipitation being snow on the 26th, which melted almost as fast as it fell, yielding 0.15 in. of water in the gauge.

Much difficulty was experienced in obtaining Gooseberry bushes of the variety *May Duke*, from a nursery in which American Gooseberry mildew was not, and never had been, in existence. This stipulation was made an inflexible condition of purchasing, and some bushes from a lot which an official inspector had declared free from the disease were rejected because the disease had been detected in two or three other lots of bushes in the nursery. It was found necessary ultimately to accept some bushes, rejected in the first instance, on the ground that they were not strong enough, as these were grown where the dreaded disease has never appeared. It seems that many nurserymen who



FIG. 165.—SPECIMEN OF *ULMUS PLOTII* (PLOT'S ELM), NEAR BANBURY, OXFORDSHIRE.

Only on one morning in the autumn has the land been hard with frost.

PROGRESS IN PLANTING.

After such a statement as that made above, it may seem strange to remark that the hindrances to fruit-planting have been few and brief. The explanation is that the prolonged drought had rendered the land dry to so great a depth that it speedily absorbed the water that fell upon the surface other than that which passed away in water-furrows, where these had been made. It is further to be observed that the greater portion of the rain fell between sunset and sunrise, and that there were many days of bright sunshine in October, and a considerable number in November. Consequently the land, except immediately following a heavy downfall of rain, was found to be in fair condition for planting, and this was particularly the case in the latter part of November, when only a little rain fell.

used to raise Gooseberry bushes have ceased to raise them, in consequence of the American mildew.

A PLAN FOR BLACK CURRANTS.

One result of the summer drought was that a plan of planting young Black Currants between bushes 6 feet apart, planted two years ago, had to be postponed for a year, as the young bushes raised for the purpose are not big enough. They are not more than half the size which has been attained from cuttings in previous seasons, and they will be bigger a year hence if cut back severely and left where they are than they would be at the same time if transplanted. It is usual not to plant out such bushes until they are two years old, but in previous seasons the best of my maidens have been as big as many a lot of two-year-old bushes, and they have grown remarkably well after being cut back before planting them. The idea of interplanting

referred to is that of allowing the original bushes to stand and fruit until the younger ones begin to crowd them, and then to cut the old bushes to the ground level, leaving the young ones to fruit until it is their turn to be cut down, namely, when the originals have grown up and branched out freely. There can hardly be any doubt that the plan would be a good one for a plantation of Black Currants by themselves; but where there is top fruit the trees may overshadow the bushes before there has been time for the full advantage of the plan to be realised.

My bushes were set 6 feet apart in order to allow of horse cultivation across as well as up and down the field between the trees and bushes. But I have come to the conclusion that this involves too much loss of space in the case of Black Currants, because the bushes become too much infested with mites by the time that they have branched out sufficiently to require so much room. After all, the only difference between horse cultivation in one and two directions is that more hand-hoeing is necessary in the former case than in the latter, and this is a trifle in comparison with the advantage of fully utilising the land. If I were planting Black Currants afresh I should set them 6 feet apart from row to row as at present, but only 3 feet apart in the rows, with the object of cutting every alternate bush down to the ground level when they begin to interlace, and doing the same with the remaining bushes when the cut-backs have branched out sufficiently some years later. By this method anything like a bad infestation of mites would be prevented—at least, it would be so with *Boskoop Giant*, which is less liable to the pest than any other variety, with the possible exception of the ordinary French variety.

A COX'S ORANGE SEASON

Apparently, a season of hot drought is precisely what suits Cox's Orange Pippin, as it is doubtful if as great a crop of that delicate variety of Apple as that of 1911 has ever before been produced in this country, or a crop of equal quality and freedom from blemish. Greatly liable to scab, as well as to canker, as Cox's Orange Pippin is, it is not surprising that a hot and dry season suits it. My own crop was entirely free from scab, though not free from bitter pit or fruit spot, whichever the complaint may be. This pitting, moreover, increased on keeping some of the fruit up to nearly the end of November. But the bulk of the crop consisted of very fine Apples, and a great many of these were carefully selected, packed tastefully in small boxes, and sold at prices ranging from 1s. 6d. to 3s. per dozen, while ordinary firsts made 5s. per peck, after the selected fruit had been taken from them. It is very pleasant to get high prices for something, and yet, in spite of one successful Cox's Orange Pippin season, few growers are likely to extend their acreage of this variety, because it pays only in districts or soils particularly well suited to it. In seasons of rarity this Apple has been sold at prices double those of the present season, apart from the selected fruit, and that was down to 1s. 6d. per dozen, while the supply was at its greatest. Selected fruits must be large, well coloured, and free from blemish.

SHORT WEIGHTS IN LONDON MANURE

A very serious matter to fruit-growers and market-gardeners is what some of them declare to be the systematic charging for a greater weight of London manure than is supplied. I have had reason to suspect it, but Mr. Spencer Pickering, in a letter to the *Times* a short time ago, stated that he had proved it by having several trucks of the manure weighed at the delivery station, and finding the weights less than those invoiced. More recently the evidence of a market-gardener has been given in the

Fruit-Grower. He buys about 1,800 tons of London manure in a year, and as there was no weighbridge at his nearest railway station, he had one erected at his own place at a cost of £80. In the presence of a representative of the railway company he weighed the manure taken out of three trucks, and it was found that the actual weight was from 1 ton 5 cwt. 1 qr. to 1 ton 15 cwt. 2 qr. per truck less than that for which he was charged. The total deficiency in the three trucks was 4 tons 7 cwt. 1 qr. In other words 20 tons 1 cwt. 3 qr. were invoiced, and only 15 tons 14 cwt. 2 qr. received. The suggested explanation is that the railway man who weighed the manure was bribed by the seller to report the weight falsely. Other buyers have since come forward to say that they have been similarly cheated, and one of them states that he believes the fraud is effected by watering the manure profusely before the weighing, and that most of this water drains out of the truck in transport. Unfortunately, there is



FIG. 100. FROTSCH MOUNTAIN, NEAR FINESHAPE, NOT THAMPTON SHIRE.

no truck or cart weighbridge at a country station as a rule, so that it is impracticable for farmers or market-gardeners in rural districts to test the weights received.

FRUIT-GROWERS AND THE INSURANCE BILL

It is safe to say that no fruit-grower knows what his position in relation to the National Insurance Bill will be when that measure comes into force. Fruit-pickers who work by the piece will earn in a few week wages much above the exemption level and below that level in a wet week, while, for other reasons than amounts earned, some will be liable to compulsory insurance and others will be exempt. The difficulties of an extensive grower who employs scores, or even hundreds of pickers in the Strawberry season may be more easily imagined than described. But the worst of it is that there is a clause in the Bill quite unamended, so far as I have noticed, requiring an employer to pay his share of insurance for an employee, even if that person be exempted. A *Southern Grower*.

BACK TO THE HILLS.

(Continued from p. 388.)

THE SCHLERN.

THE Schlern is that huge, table-shaped mass of limestone that rises a few miles north of Bozen. It is a *tabula Delonitica*, unlike most of the mountains that usurp the name. Standing well out from the range, it is rich in treasures. One climbs towards it from the deep valley of the Adige far below, over dark igneous rock, where ash-grey plants are seen, and strange *Senpervivus*, and *Epilobium rosmarinifolium*. Then, after two or three tedious hours, the upper level is reached, and suddenly the northern face of the Schlern leaps into view above the Pine trees. This is as dramatic a view as any in the Dolomites, as the Schlern mass concludes in two appalling isolated needles of stark rock. In those grim chimes and vertical faces the adventurous may climb to see *Saxifraga Buseriana*, *S. squarrosa*, *Phyteuma comosum*, *Asplenium Seelosii* and *Campanula Moretiana*. These two last are especial treasures. They both cling to the tiniest crevices of the hardest rock. The *Asplenium* likes sunshine. The *Campanula* has an even more marked preference for cooler, northerly exposures; it is a lovely small plant, hairy-leaved, with big, dark-blue flowers, that were only a profuse promise when I climbed to see it.

The way to the Schlern winds round, along the upper level, and then again, up the steep gorge of the Frottsch, on to the secondary level, above which now towers abruptly the wall of the mountain. This alpine level, covering many square miles in one rolling down of meadow, is the largest of all European Alps—the Seiser Alp—a sea of Gentians and Geums and Anemones in its time. But now we are to breast the long, sharp slope of the Schlern. It is not, however, until we emerge upon the high, undulating plateau of the summit that we at last arrive at anything of very special interest. That turf, stretching indefinitely up and down the distances, is mainly composed of Geums and Anemones, *Myosotis alpestris*, *Douglasia Vitaliana*, *Primula longiflora*, *P. farinosa*, *Ranunculus rutaeifolius*, *Gentiana Chusii*, *G. angulosa*, *Edelweiss*, and *Potentilla nitida* in mats and carpets wherever the ground is more open and stony. The show is marvellous. *Primula minima* belongs to this mountain, too, and *Androsace Haussmannii* is to be found in its terrible walls.

Neither of these, however, did I find, but continued my way exploring along the track to the Grasleiten Hut. *Valeriana salicina* rejoiced my eyes and nose in the steep earth-pans, and *Androsace helvetica* abundantly compensated me for my failure to see *A. Haussmannii*. One descends and descends into the Beneloch, and then ascends once more to the Grasleiten Hut. In all the southern cliffs of the Schlern the masses of *Androsace* hang like green face-sponges, and even in the shingles are wide carpets of *Potentilla nitida*. Thalspi, too, occurs in the stone-pans, with *Ranunculus Seguieri* beginning higher up on the gaunt Molligon Pass.

The Grasleiten Hut sits in a grim gorge of desolate cliffs. Behind and above it lies an enormous amphitheatre of perfectly naked shingle, descending on every side, from the terrible bare walls of the Fassa Dolomites. But all that stony track is aglow with the packed lilac loveliness of Thalspi. *Papaver rhaticum* is pushing up its big lemon flowers, and I even happened at last on a strayed colony of *Androsace Haussmannii* that had seeded down from some inaccessible cliff. For inaccessible peaks and cliffs are the normal home of *Haussmannii* *Androsace*, and there it grows ill-temperedly in wizened little single crowns, depending from the solid rock. In the shingle, however, it had waxed fat, and made big tufts; its narrow, pubescent grey leaves and its clusters of rose-pink buds give it a promise of extraordinary attractiveness,

which is not quite fulfilled by its rather diminutive white stars, when at last they appear.

The next day I ventured over snowfields to the Grasleiten Pass, and thence, again, over yet higher, further snowfields, to the Antermoja Pass. The snow concealed *Ranunculus parnassifolius*, and at that great height the flowers were few. Here, one is up in the very centre of the Fassa Dolomites, in a scene of barren grandeur, unimaginable and indescribable. It seems the kingdom of an everlasting silence. So one comes round over the shoulder of the pass, to find more Thlaspi glowing among the stones, and *Androsace Hausmannii*, looking sad and poorly in the rocks. Over snowfields and shingles the track (or its direction) descends and descends, until it reaches a vast valley of fine scree, all dark with lumps of vegetation, among which, however, the most interesting plants are *Gentiana brachyphylla* and *Saxifraga cæsia*, this latter species in a form which seems to me to be of special size. Away below this, again, one comes to the lovely lonely little Antermoja Lake, lying bright and still and green amid the tumbled desolation of grey limestone all round. Beyond it, far away over the ranges, high over the Val di Fassa, that lies between, there rises the superb and terrifying triangle of the Marmolata, seen sidelong—the huge snow-slope, and then the awful 6,000 feet of its southern wall.

From the lake one rounds a shoulder, and then drops down and down and down into the Duron Valley, over limestone still, passing scree-patches all aglow with Thlaspi and citron-pale *Papaver rhæticum*, and *Androsace Hausmannii* looking quite plebeian among the pebbles; until at last one comes suddenly round upon black igneous rock, to be immediately dazzled by the violet splendour of *Linaria alpina*. After which the path of the Duron Valley winds down and down and down in its turn, over meadows and through wood, until it sinks at last into the Val di Fassa at Campitello. *Reginald Farrer.*

(To be continued.)

THE MADRESFIELD AGRICULTURAL CLUB.

I THINK the title which would best describe the scope and work of a club such as the one which forms the subject of this article would be "Agricultural Club," both elements playing an important part in its activities. Unfortunately, there is often a tendency to ignore the claims of horticulture in favour of those of its more utilitarian sister-craft; a tendency which is apparent in the policy of the present Government. The Board of Agriculture and Fisheries has truly as much to do with horticulture as it has with the industries which it ostensibly governs; but that is not saying much. And why should not "horticulture" be specially mentioned in the title of the Board, instead of being tacitly included under "agriculture"? The two industries, although closely allied, are clearly quite separate and distinct. Horticulture is becoming of greater importance year by year; more labour is employed in this service, more land placed under floral cultivation, more results obtained from even the same acreage by the application of the system of intensive culture.

There are, however, signs of agencies at work which, if rightly and wisely directed, should bring about a great improvement in the status and development of these industries. I allude, for instance, to the recently established Development Fund, a portion of which is to be devoted to numerous experiments of a scientific nature in horticulture and agriculture. The Royal Horticultural Society's experimental station in their gardens at Wisley was established with a similar object, though in relation only to horticulture.

Nature study, botany, gardening, &c., are taught in Government and council schools and colleges, both day and continuation, all over the country, so that opportunities are offered to all to learn at least something of these fascinating subjects. Indeed, to me, as a practical gardener, there appears even a danger of overdoing the scientific and theoretical side of horticulture; this is useless unless it is accompanied by really hard, persistent practical work. Horticulture would never have been brought to its present position had it not been for the unremitting industry and toil of thousands of working gardeners, many of whom had no advantage whatever in the way of scientific instruction or knowledge.

The club which forms the title of this article is run on very "practical" lines, though the claims of science are by no means ignored. The founder of the club, Earl Beauchamp, is also its president, and much of the success it has already attained is to be attributed to his initiative, and the keen interest he takes in its welfare. The president is supported by a committee of about 20 practical men—farmers, fruit growers, gardeners, and others resident in the neighbourhood.

The aims of the club are two-fold; firstly, to induce the workers on the land to take a creative and proprietary interest in their labour; and, secondly, to increase their efficiency. In point of fact, these two may be taken as cause and effect, for, with interest, there is more energy, more spirit, greater intelligence, than without it. In order to induce this interest, prizes are offered for competitions, covering nearly all the work done on an ordinary farm—hedging, ditching, ploughing, thatching, mowing, reaping, rick-building, hop-drying, hop-stringing, sheep management, poultry keeping, &c. There is also a veterinary section, dealing with the prevention and cure of the common diseases of farm stock.

An agricultural exhibition is held annually on the estate in connection with the club; this is always a red-letter day for the workers; prizes are distributed, and a feast is provided which no one is too proud to enjoy. There is also an annual flower show, which is held in the grounds of the court; prizes are offered for almost every sort of flower, fruit, and vegetable which a cottager could produce. The day of the flower show is the great day of the year; not only do the workmen compete, but prizes are also given for needlework, carving, &c., the results of long busy winter evenings of the wives and elder children. Then there are competitions for miscellaneous articles, such as butter, cakes, honey, and wasps' nests—this latter a most useful class, especially in such a summer as the last. The opportunity is taken to give demonstrations on various useful subjects, such, for instance, as the pruning of trees, in connection with which a special class is held by an expert in the art, which may be attended by any one in the district. At the end of the session (three or four weeks) a pruning exhibition is held in an orchard within reach of the club; a competent fruit grower is appointed as judge, and prizes are given for the best-pruned trees. Each competitor is distinguished by a letter attached to his coat, and corresponding to that on the trees which he has to prune. The trees are generally Apples (standard), Plums, and Gooseberries, or sometimes Pears, Cherries, and Currants, and they are chosen to present as far as possible the same features. The competition begins punctually at 10 a.m., without regard to weather, and each competitor is provided with steps, ladder, saw, and knife. The judge remains on the spot and watches the work throughout, and at 1 p.m. the competition ceases. The judging is done by points, which are noted down during the progress of the pruning, so that the winner is declared as

soon as the competition is closed. As a rule about 15 or 20 lads compete. Points are given for judgment as to which branches to cut, skillful and expeditious manipulation, and the appearance of the trees when finished. The pruning demonstration is really of great service to orchard owners, who may thus have their trees pruned free of all charge; the work is usually done very well, as the competitors are trained by the hardy fruit foreman at Madresfield Court. In case of any damage being done, the judge is empowered at once to stop any pruning if the competitor appears incompetent. The advantage to the men themselves is still more obvious; the knowledge thus gained will be of incalculable benefit to them, especially to those who will one day possess fruit trees of their own.

The theoretical side of horticulture and agriculture is chiefly developed by means of lectures and demonstrations which take place in winter at the club room; there are also nature study rambles in the summer. It may be mentioned here that this part of the work receives valuable assistance and encouragement from the Worcester County Council in the shape of an annual grant of £150.

The recreative aspect is by no means forgotten, and cricket in the summer, concerts, a few dances, and facilities for boxing practice in the winter, form pleasant diversions. The evening of the flower show is always wound up by a dance on the lawn, which attracts large numbers of country people, and which is always attended by the Earl and Countess Beauchamp.

I hope that I have succeeded in showing that this club renders a considerable amount of real and practical service to the villages in the neighbourhood, and so indirectly to the county in general. The club, moreover, publishes a quarterly journal, which records the transactions in an interesting way, and is edited by the estate agent, Mr. Wilson.

The secretary of the club is Mr. A. D. Melvin, address Abbotstodford, Malvern Link, Worcestershire, and the secretary of the horticultural sub-committee is Mr. Crump, of Madresfield Court Gardens. In case anyone would like to hear more of the work of the club, either of these gentlemen, would, I am sure, be glad to give information on the subject. *Owen Thomas.*

AMERICAN NOTES.

RHUS TOXICODENDRON.

In my copy of the *Gardeners' Chronicle* just received, my friend Mr. Divers writes (p. 272) of *Rhus Toxicodendron*, and its seemingly non-poisonous character.

Very few seem to be injured by it when the plant is dormant, though this cannot be said to be the case always. For myself, I am very susceptible at all times to the poison of *Rhus* and of *Prunella obconica*.

Last summer, when the *Rhus* was just budding forth with blood-red shoots, four men were employed to root it up, for unless given something to climb upon, it becomes a pestiferous ground weed. These men were seemingly immune until hot weather, but when perspiration was free all were badly affected. The face swells to such an extent that the sufferer can scarcely see, and other portions of the body are also affected.

Our physician recommended as a remedy tincture of *Sanguinaria canadensis*, sopped on with a soft cloth. Each man was cured in four days by the use of this simple remedy. The blood-root grows plentifully here with the *Rhus* in similar situations, and a pint of the tincture is ample to effect a cure of a serious case. Physicians also recommend the fluid extract of *Grindelia robusta* for cases of poison from *Rhus Toxicodendron* and *R. venenata*, the latter being the worse of the two species. *E. O. Orpet.*

THE REMOVAL OF TREE STUMPS.

THE removal of tree stumps is often necessary, as in the conversion of old pasture into arable land, and in clearing forest land. The various methods used generally entail considerable labour and expense. Recently, at Studley Horticultural College, Warwickshire, the writer saw the first demonstrations in this country

each being firmly pressed home by a wooden rod. A primer cartridge containing a detonator is then placed on the top of these, and the bore-hole is filled with clay and tightly rammed. The primer is either connected directly with a safety fuse, or to a high-tension battery, by a cable, and is afterwards fired. As dynamite strikes downwards as well as upwards, the effect of the explosion is that the roots and stump are

besides travelling and hotel expenses. Three men—an expert and two labourers—can bore holes and blast 30 sound stumps per day easily. If the stumps are hollow in the centre, two or three bore-holes are necessary for each stump, and in that case 20 only can be blasted during the day. Taking the wages of two labourers at 2s. 6d. each per day, the cost of boring and firing averages 2½d. per stump, exclusive of the expert's fee. The expert's fee increases the cost by about 2s. per stump.

The explosive used is Nobel's dynamite, in the form of cartridges, costing 9½d. per lb. The average quantity used for each stump is between 2 lbs. and 3 lbs. (about 20 to 30 cartridges), so that the cost of the explosive is not more than 2s. 6d. per stump. The detonators and fuses required only cost a few pence. Summing up, the cost per stump is:—

	s. d.
Expert's fee	2 0
Cost of boring	0 2½
Cost of explosive	2 6
Detonators and fuse	0 9½
	5 6

Misfires and partial removal of stump may require fresh borings and further charges of explosive, so increasing the cost. By employing a skilled estate hand capable of using explosives instead of an expert, the expense, however, is greatly diminished.

By the old method of grubbing and jacking, stumps were removed at Studley some time ago at the high cost of about £2 5s. each butt, and even then success was only partial. In another case, on an estate in Norfolk, where an old pasture was converted into a plantation of mixed trees, trenching at the cost of £18 per acre had to be resorted to on account of the presence of roots and stumps of old trees. In this case it would have been much cheaper to have removed the stumps by blasting. The demonstrations at Studley showed that both sound and unsound stumps could be successfully blasted, and whole trees—an Apple and an Oak—were also uprooted by the same method with equal success, using only one bore-hole and about the same charge of explosive. The timber of the trees so treated, however, is very much split, so that blasting is only advisable when the timber is considered of little value.

The particular explosives used are unaffected by damp, and, in consequence, the method is applicable in both wet and dry situations. Firing the charges was done at the demonstrations mostly by ladies, and a photographer was able to get sufficiently near to obtain photographs of the effect of the explosion without danger. The principal recommendations of this method, therefore, are cheapness, effectiveness, and safety.

Stumps may also be removed without blasting by the following method, which is, however, only applicable when the soil is light and sandy. A trench is dug round the tree at a short distance, cutting through the roots, and the surface soil is removed. The tree is then pulled down by means of a strong rope attached to the top, and the stump, with some of the roots, is removed at the same time. Where this method is followed, the extra timber obtained is enough to pay for the cost of felling the tree, and the ground is cleared of stumps. A. P. Long, Cambridge.

ODONTOGLOSSUM CHIONE.

OUR illustration (fig. 167) represents the intense and beautiful *Odontoglossum Chione*, for which W. R. Lee, Esq., Plumpton Hall, Manchester (gr. Mr. Woodhouse), was awarded a First-class Certificate at the Royal Horticultural Society's meeting on the 21st ult. A similar award was given to *O. Thais*, also shown by Mr. Lee. Both were of unknown parentage, but the form of the lip and fine texture of the flower of *O. Chione* suggest that *O. Lambeauianum* (Rolfe × *crispum*) was one of the parents. The prevailing colour is bright claret-purple, the front of the lip and the tips and margins of the sepals and petals being pure white, whilst the crest is yellow and red.

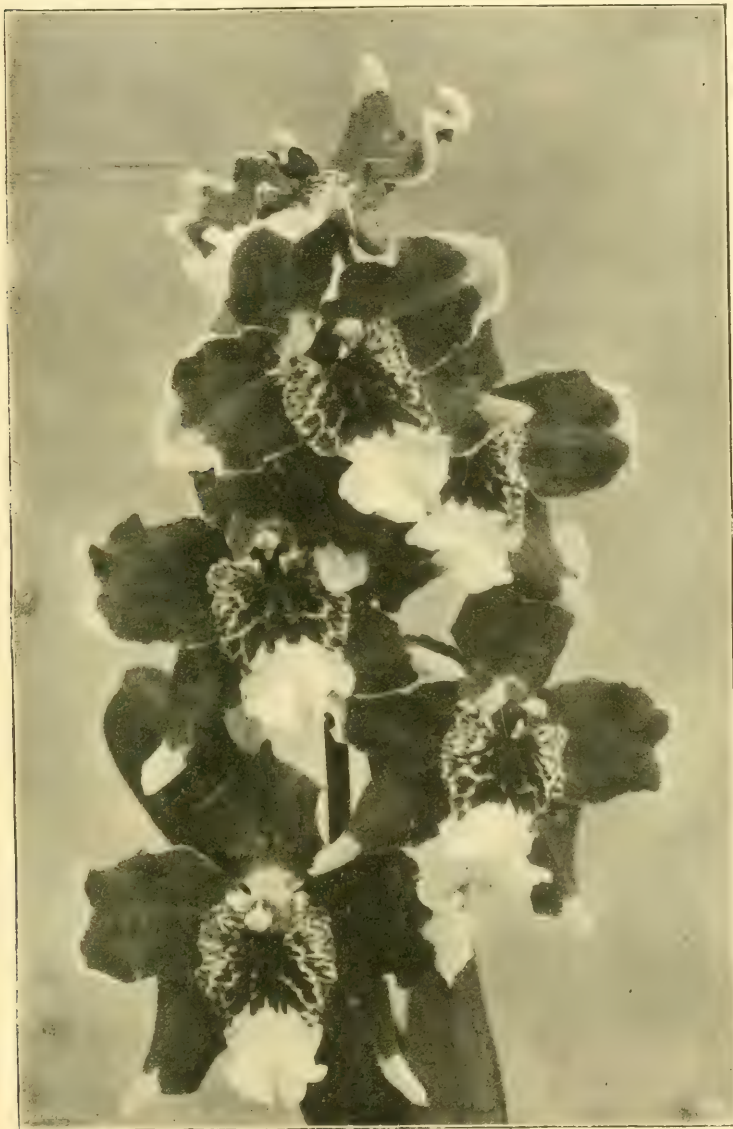


FIG. 167. — *ODONTOGLOSSUM CHIONE*.

(Received R.H.S. First-class Certificate on November 21.)

(Paint graph by John Gregory.)

of the American method of blasting, which may be described as follows:

A hole is bored with a long auger or crowbar in a sloping direction from one side of the stump to its base, generally from 2½ feet to 3½ feet deep. The bore-hole is cleaned out, and a number of dynamite cartridges inserted,

all either ejected or loosened, so that they can be easily removed by hand.

The American method is less costly and more speedy than the methods hitherto used in England in removing stumps. If there is no man on the estate qualified to handle explosives, an expert must be employed at about £1 per day,

THE ROSARY.

ROSE MME. HECTOR LEULLIOT.

THE accompanying photograph (see fig. 168) may be of interest in view of the recent discussion in the *Gardeners' Chronicle* of the merits of this beautiful Rose. Our plants of Mme. Hector Leulliot grow splendidly, trained up rustic poles 8 feet high. We have these beds, each 6 feet in diameter, planted with the variety, there being three plants in each bed. They generally furnish a supply of blooms through the greater part of the season.

and mid-winter blooms cannot be had without considerable heat now that the growth has progressed sufficiently to show the flower-buds. If hurried, there will be a danger of a large number of the shoots coming blind.

Grafting should be done all through the month of December. I omitted to mention in my remarks last month that the Dwarf Polyantha varieties Jessie, Phyllis, Mrs. W. Cutbush, Orleans and others have some good shoots suitable for grafting now that the blooms are over. If secured I use much first class these shoots may be used for grafting. Our plan is to

Roses in pots from the first. They develop a larger mass of roots when planted out than when grown in pots.

Although Standard Briars may be planted early, it is wiser to delay the planting of dwarfs until the spring, the stocks being safest when bedded in the soil during winter. *Practice.*

FLORISTS' FLOWERS.

THE PHLOX.

THE border Phlox, *P. decussata*, is easily grown, and may be raised from seeds, cuttings, or by division, the last operation being done in the spring. The best plants that I have seen during recent years were at Miss Willmott's garden at Great Warley. There the soil is well prepared for them, and ample space is allowed for their development. But the finest examples of this handsome garden plant that I have seen were in the nurseries of John and James Fraser at Lea Bridge, nearly 50 years ago. These famous nurserymen objected to the clumsy method of division, as not likely to give the best results, and they propagated their plants with two objects: first, to produce saleable specimens that would give satisfaction to their customers; and, secondly, to make a display in their nursery such as would show the plants to the best advantage when planted out in the open garden.

Every plant they sold was propagated from a cutting, and care was taken in the selection of the shoots for the purpose. A great number of cuttings may be obtained from a single root-stock if it be lifted from the open garden at the present time and placed in the greenhouse or a heated pit. If a greenhouse is selected, the plant should be potted, but in the case of the heated pit it may be either planted out or placed in pots, as may be convenient. The object in either case is to obtain good, strong cuttings in March. I am now potting up a plant of each variety for the purpose. I do not grow many sorts, as I consider a dozen sufficient, and plant six plants of each. In this case 12 6-inch flower-pots are required, and the plants are potted firmly in good soil. I follow carefully the system adopted by Messrs. Fraser, and do not know that it is possible to improve upon it. When the growths are about 2 inches in length they should be taken off with a heel, and each one inserted separately in a small 6-inch flower-pot. They will soon form roots, and the more readily if a little bottom heat is provided. Each plant, when well established, should be repotted into a 5-inch pot, and these plants, if well grown and afforded occasional applications of weak liquid manure, will each give a handsome spike of flowers. Plants grown in this manner are excellent subjects for placing in a greenhouse or conservatory, and those who have not practised this system of culture should give it a trial. From the nurseryman's point of view, no better plants could possibly be sent out to customers; but I was thinking of gardeners and amateurs; as the trade are supposed to be able to look after themselves. It may not be convenient to amateurs to attend to Phloxes in pots during the summer, therefore it is as well to plant them out in the open garden in beds if possible, at about 12 inches apart. This distance will not be sufficient after they have grown for a season. The Phlox is a gross feeder, and the soil should be worked to the depth of 18 inches or 2 feet, and well enriched with manure. The plants must be replanted into beds or borders 2 feet 6 inches apart, and each plant may be allowed to carry from three to five stems. Specimens that were allowed to flower in pots should also be planted out as advised. The summer treatment of border Phloxes is of primary importance; few plants suffer so much in hot, dry weather, owing to their tendency to make a large mass of roots near to the surface of the ground. Hoeing between the rows serves to conserve the moisture in the soil to a considerable extent; but this is not sufficient. The best plan is to mulch



FIG. 168.—ROSE MME. HECTOR LEULLIOT IN SIR RUFUS ISAAC'S GARDEN, FOXHILL, READING.

The old wood is thinned out every year, as the plants make plenty of young shoots, which are trained in. Our soil is a very stiff, cold clay, being especially favourable to mildew, but seldom is this variety attacked by the disease. I think the flowers have been finer this year than ever, plenty of sunshine suiting the variety. *E. B., Foxhill Gardens, Reading.*

ROSES UNDER GLASS.

The earliest plants may now be afforded a slightly higher temperature, and another batch brought in for a succession. Those that are being forced should be breaking into active growth.

train off a row of the coarsest leaves, and graft in the form known as green or herbaceous grafting. Any small piece of wood will suffice, and the scion may be cut in the form of a small wedge. This is simply slipped into a corresponding slit, cut in the middle of the stock, and then stock and scion are bound together. It is quite distinct from side or crown grafting, can be done very quickly, and seldom fails. Plants raised in this manner will be ready to bed out next May, and will be a mass of blossom from the end of June until frost sets in. I would greatly prefer to plant all out and repot any that are wanted for the purpose to the usual plan of growing the

the roots with decayed manure, and then to water well. Two copious waterings in one week are better than dribbles every day. I also prefer to use water that has stood in a tank for at least a day in the open air; in most gardens water comes direct from the main, and is very cold. Use a water-can with a rose. Raising Phloxes from seed is interesting work. If the seed is saved indiscriminately, from 40 to 50 per cent. of the seedlings may be as good as the parents, but few or none better or different in colour. Cross-fertilising is necessary to obtain good results. The seed should be sown in February in a little heat, and as soon as the seedlings are large enough to handle they should be placed singly in small pots. Repot the plants into larger receptacles in due course, and, with good treatment, the plants will each give a flowering spike the same season. They should be planted out early in May in good soil at a distance of 1 foot apart, as advised for plants raised from cuttings. Many beautiful varieties of Phlox have been raised during recent years both in this country and on the Continent, with most symmetrical spikes, and the form of the flowers is all that could be desired—from a florist's point of view. The Phlox may well lay claim to the very highest position amongst flowers beloved of the old florists. The colours are so rich and varied, the corolla quite circular, and the perfume is delicious. It is a difficult matter to keep the list of the best varieties down to 12, therefore I have enumerated 18, with their colours:—Antonin Mercie, lilac or pale lavender; Baron von Dedem, orange-scarlet, or blood-red, as described by the raiser; Beranger, pale rose, changing to white; Coquelicot, orange-scarlet, still one of the best of its colour; Dr. Königshofer, orange-scarlet, with blood-red eye, superior to Coquelicot; Dove, white, with pink centre; Elisabeth Campbell, distinct salmon colour; Frau Antonin Buchner, perhaps the best white variety; General Van Heutz, bright salmon-red; George A. Strohlein, orange-scarlet, with dark eye; Goliath, very tall grower, carmine, dark-red centre; Gruppunkönigin, very fine rose-pink; Le Madhi, the best of the bluish-purple varieties; Mme. Paul Dutrie, soft pink, suffused with white; Mrs. Oliver, salmon with white centre; Selma, pink, with a reddish-pink eye; Sheriff Ivory, salmon-tinted buff; Tapis Blanc, a fine dwarf white variety. *Jas. Douglas.*

MUTISIA.

A BEAUTIFUL AND VERY FREE-FLOWERING plant flowered very freely in the autumn in the temperate house at Kew. It is *Mutisia Clematis* (see figure in *Gardeners' Chronicle*, June 26, 1909, p. 415), which is altogether a more vigorous grower than its better-known relative, *Mutisia decurrens*, from which it also differs widely in other particulars. In *M. Clematis*, the leaves are pinnate, and terminated by branching tendrils, which cling to any support within reach. The general aspect of the foliage is that of a leguminous plant, a resemblance which is increased by the leaflets being clothed underneath with fine, silky hairs. At Kew, the main branches of this *Mutisia* are trained to a wire stretched between two of the pillars supporting the structure at a considerable height above the ground, and from these the minor shoots hang down to a considerable distance. The flowers are very singular and totally dissimilar from the Gazania-like blossoms of *Mutisia decurrens*. Those of *M. Clematis* hang directly downwards, suspended by slender pedicels several inches in length. The basal portion of the flower consists of large bracts forming an involucre, from the mouth of which the bright-red petals protrude. The flower never expands to the same extent as *Mutisia decurrens*. Indeed, when developed to its utmost, it appears to be but par-

tially opened. Despite this fact, *Mutisia Clematis* is decidedly attractive when in bloom, and, withal, so distinct that it can be recommended as a climber for a large structure, or for out-of-door culture in the more favoured parts of the country. It does not appear to die off suddenly, as often happens in the case of *Mutisia decurrens*. By no means a new plant, for the *Dictionary of Gardening* gives the date of its introduction as 1859, *Mutisia Clematis* is still difficult to obtain from nurseries.

Mutisia decurrens, already mentioned, is, as far as my experience goes, the showiest member of the genus. It is of a climbing habit, but much less vigorous than *M. Clematis*. The stems are of a peculiar wiry nature, and the strap-shaped leaves have their midrib prolonged into a wiry tendril capable of taking hold of any support. This feature is particularly noticeable when the shoots are scrambling over a neighbouring shrub—a situation that, as a rule, it seems to prefer. The flower-heads are quite 4 inches in diameter, the ray florets being of a rich, brilliant-orange colour, and those of the disc yellow. This *Mutisia* is a native of the Chilean Andes, and was introduced by Richard Pearce, of tuberous *Begonia* fame, when travelling in South America for Messrs. Veitch. It will grow and flower well out-of-doors in many of the milder parts of this country; but even when apparently flourishing, it has an unaccountable habit of dying off suddenly.

Another species which has flowered in this country is *Mutisia ilicifolia*. The leaves of this plant are spiny, and the flowers are usually pink, with a yellow disc. The stems are thickly clothed with a cobweb-like tomentum. It is questionable if this species is now in cultivation. Many others are known to botanists, but the only two species that are likely to be obtained in a living state are *M. Clematis* and *M. decurrens*.

The climatic conditions of the Andean region of South America are so different from those experienced in this country as to account for the difficulty attending the culture of these *Mutisias*. They thrive best in the more humid atmosphere of the West of England and Ireland, and need a fairly cool medium in which to root.

The *Mutisias* belong to the vast family of Compositæ, and have as a near relative *Barnadesia rosea*, of which I remember seeing an excellent specimen at Trinity College Gardens, Dublin, during the time of the late Mr. Burbidge. W.

SCOTLAND.

A GARDENER'S LONG SERVICE.

MR. ANDREW DAVIDSON, who for the long period of 60 years has occupied the post of head gardener at Cairngall, Aberdeenshire, has just retired from service.

Born at Summerfield, Aberdeen, over 80 years ago, Mr. Davidson served his apprenticeship at Lochhead, Aberdeen, a part of which estate now forms the Western Public Park. After a short period as a journeyman in and around that city, Mr. Davidson obtained an appointment as under gardener at Ellon Castle, where he remained for two years. At the end of that time he accepted the post of head gardener at Cairngall. There he has since remained, a most capable, skilful and honoured servant. As a judge at local and other shows, Mr. Davidson's services were much in demand. He was also an enthusiastic Volunteer, having joined the corps known as the Buchan Rifles, in which he rose to the rank of quartermaster-sergeant, retiring after 34 years service. For 50 years he has acted as parish librarian. Mr. Davidson is still hale, both in mind and body.

A SEEDSMAN'S ESTATE.

AMONG the inventories of estates lodged during November with the Sheriff-Clerk of Perthshire is that of Mr. James Alexander, seedsman, Perth. It is stated as £2,709.

PERTHSHIRE FRUIT GROWERS AND THE INSURANCE BILL.

AT a meeting of representatives of the various associations of fruit growers in Perthshire the question of the effect of the Insurance Bill, should it become law in its present form, was discussed a few days ago. Those present were from the Blairgowrie and Rattray Fruit Growers' Association, the Stormont Fruit Growers' Association, Alyth Fruit Growers' Association, Kirriemuir Fruit Growers' Association, and others from fruit-growing firms in Blairgowrie. Ex-Bailie Adamson, of the Blairgowrie and Rattray Association, presided. After full consideration, resolutions urging amendments were agreed to, and copies ordered to be sent to the local members of Parliament, with the request that they endeavour to secure the alterations. The resolutions include proposals that the tramp class largely employed at the fruit-picking season should be excluded; that fruit pickers not comprised in the tramp class should only come under the Act in cases where they are already insured. Another suggestion is that the weekly contribution should be 3d. for the employer and 3d. for the picker, irrespective of wages, the former being put at 3d. instead of 4d. on account of the intermittent character of the work, and to divide the sum better where there are different employers in course of the week; and that the fruit grower should retain 1d. per day per week from each picker until the total subscription be deducted. If the picker should remain with the grower two days in a week 2d. would be deducted; if the picker be employed with another grower that week for one day 1d. would be retained.

EDINBURGH SEED TRADE ASSISTANTS' DINNER.

THE annual dinner of the Edinburgh Seed Trade Assistants, this being the 17th of such events, was held on the evening of December 1, in the Royal British Hotel, Edinburgh. Mr. J. H. J. Young presided over the company, and there were upwards of a hundred members of the trade and their friends present. The toast of "The Seed Trade Assistants" was proposed by Mr. Robert Fife, of Messrs. Dobbie & Co. Mr. Fife referred to the importance of the industry, and said that he considered that its value to the public was hardly sufficiently understood. He also spoke of the changes which had taken place in it, and impressed upon the young men the necessity of putting all their energy into their occupation if they wished to be successful.

The other leading toast was that of the "Seed and Nursery Trade," the duty of proposing which devolved upon Mr. J. Alexander. He remarked that the seeds which gardeners could buy in Edinburgh 30 years ago could not compare with those now offered by the seedsmen of the city. The chairman, in replying, spoke highly of the generally honourable manner in which the seed trade was conducted.

CHRYSAETHUMS IN EDINBURGH AND GLASGOW PARKS.

THE opportunities afforded by the conservatory at the Saughton Park, Edinburgh, for the display of flowers are being fully taken advantage of by Mr. J. W. McHattie, and at present there is a most attractive show of *Chrysaethums* in the large hall of the conservatory and its annexes.

In the Glasgow parks the usual displays have also been made, and the quality of the plants and blooms has been very fine. At Camphill, Tollcross, Glasgow Green, the Botanic Gardens, and other parks containing winter gardens there have been splendid displays, and Mr. James Whittom, the superintendent of the City Parks is to be congratulated. *Correspondent.*

The Week's Work.

THE ORCHID HOUSES.

By H. G. ASSENDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., C.B.E., Westbury, Gloucestershire.

SCALE INSECTS.—The principal work needing attention at the present time is the washing and cleansing of the plants. The resting season offers a favourable opportunity to do this operation, and the grower is enabled to give more attention to the work than would be possible at other times during the year. The exhausting effects of various parasites upon the plants are not sufficiently considered by some cultivators. Few collections are free from white scale, a troublesome insect which establishes itself on the leaves, and under the outer sheaths of the growths of Cattleyas and other species. Wherever this scale establishes itself the result is yellow spots upon the foliage. The destruction and removal of this pest may be easily accomplished with the aid of one of the many safe insecticides now on the market, and now that time can be spared, every plant should be examined, and the leaves and bulbs made scrupulously clean. Where the pest is very numerous the outer sheaths of the pseudo-bulbs should be stripped off, and, after the insecticide has been applied, a small, pointed stick should be used to remove the scales. This cleansing process, even when trusted to careful and reliable men, is difficult to carry out without causing some injury to the plants, but the least damage occurs when the operation is performed at a time when the growths are fully matured. The distichous-leaved Orchids are subject to attack by both white and brown scale insects, whilst Cymbidiums, Celogynes, and a few other Orchids are often infested. Large specimen plants with leaves crowded together, are the most difficult to cleanse.

THRIPS.—Thrips are often troublesome during the winter, and especially in the warmer houses, when a considerable amount of fire-heat has to be employed to maintain the requisite temperatures. This troublesome pest seems to hang about the plants, lodging in the centres of any young, tender growths, markings on the leaves denoting its presence. This pest should be kept in check by treating the plants with some safe vapourising compound at regular intervals. Before fumigating, close the house early, damp the bare spaces freely, and allow the temperature to rise, which will be an inducement for the insects to leave such hiding places as the vapour cannot readily enter. When using these strong nicotine preparations, remember that two mild applications, at an interval of about one hour, are quite as effective, and safer, than one of greater strength.

OTHER INSECTS.—Many other insects attack Orchids, including woodlice, snails, slugs, ants, and cockroaches and the following methods are useful for capturing and destroying these pests. Woodlice, which cause much damage to the tender, young roots, may be destroyed by placing Potatoes cut in halves, about the plants and on the compost as traps, examining these at night and early in the morning, till the woodlice are all destroyed. The creatures are often disturbed by the watering, which causes them to come to the surface of the compost, when they may be easily captured. Snails and slugs may be trapped by Lettuce or Cabbage leaves, sliced Potatoes or Carrots, and bran in small saucers, placing these about the houses amongst the plants. With the aid of a lamp the cultivator should search diligently for these pests at night. In the cool houses where slugs and snails are often most troublesome, the flower spikes of *Odontoglossums*, *Odontodas*, and other Orchids of their type, may be protected as they are pushing forth by a band of cotton wool wound around the base of the flower stalk. The safest plan in the case of rare and valuable plants is to place them on inverted pots, stood in pans of water: even then a constant watch is necessary, as small slugs and snails often hide themselves in the potting materials. Cockroaches and crickets may be kept

under by using "Beetawline," which may be purchased from the sundriesmen. Ants may be destroyed after first attracting them to sponges wetted and filled with sugar, or by sprinkling the latter about their haunts, and when they are feeding spraying them with a strong solution of XL-All insecticide.

PLANTS UNDER GLASS.

By JAMES HUBSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

INDOOR TEMPERATURES.—We have already experienced wintry weather, and must guard against the temperatures in the glasshouses falling below the minimum, both during the day and at night time. It is a mistake to consider that in mild weather this matter is one of small importance; weather conditions must constantly be watched, and stoking be done carefully. Too much fire-heat should not be maintained during the dull and sunless period of the year; it weakens the vitality of the plants to a serious degree, and favours the spread of insect pests. In sunnier climates, such as Canada and the Northern United States, where the air is clearer, and the periods of bright sunshine longer than in any part of England, it is practicable to maintain higher temperatures in the glasshouses in winter, even although the atmosphere outside is colder than ours.

THE STOVE.—For purposes of heating, it is desirable to classify stove plants under two heads—a difference of 5° Fahr. being made between them, both day and night. An "inter-media" stove house is, of course, a great convenience, especially in the winter. Here the night temperature may range from 55° to 60° at the time of making up the fires, and these should be started again very early in the morning. During the day, the temperature may be increased by 10°, and, whenever possible, the house should be ventilated. Atmospheric moisture should be regulated according to the amount of heat employed. It should be remembered that a very hot, dry atmosphere is favourable to such pests as White Scale, Thrips, and Red Spider. A house, such as the one described, is suitable for growing winter-flowering Begonias, and the forcing of bulbs and plants where a special forcing pit is not available. In the warmer stove, the temperature should be increased by 5° at night, and 10° during the day when the weather is bright and fine. This house would be suitable for such plants as Allamandas, Dipladenias, and *Ixoras*. Alocasias and other aroids will also thrive well in it. *Codiaeums* will grow well in either of the temperatures named, but are best kept in the warmer house. Space should be economised, and as much light as possible admitted by pruning some of the more luxuriant growths, from such subjects as Allamandas, Stephanotis, and *Clerodendrons*. *Bougainvillea glabra* may be wintered at the warmer end of the house, but the roots must be kept on the dry side. *Caladiums* should be wintered in the warm stove if possible and kept quite dry. In the case of all the plants, the watering should be regulated according to the nature of their requirements. Shrubby evergreens need a good deal of water, and often do not get sufficient. *Ixoras*, too, should not be allowed to drop or flag for want of moisture. Plants which are wholly or partially deciduous do not need much water whilst at rest.

THE GREENHOUSE.—I have recently given particulars regarding the temperatures in the greenhouses, advising that they should be kept as low as possible, and it may be taken as a safe rule that during frosty weather 5° above freezing point, in the morning, will be quite sufficient. In the case of houses which are exposed to the full blast of a north, north-east, or east wind, it is a good thing to cover up the windward side with the brown sheeting which is now so much used. This may be obtained in pieces of any size or shape, and will quickly repay the initial expense by the efficient protection afforded to the plants. It will last, with ordinary care, about three seasons. Hooks and eyes should be used in preference to nails for fixing the sheets, the nails being destructive to the sheeting and unsightly. Plants of permanent growth should not be allowed to become overcrowded; it is a good thing to make use of shelves wherever possible, and thus save room. Tender plants, such as

Cinerarias and Primulas, should not be placed too near to the hot-water pipes. A strict look-out should be kept for symptoms of damping in the foliage, which must be prevented at all costs.

THE KITCHEN GARDEN.

By JOHN DESS, Kitchen Garden Foreman, Royal Gardens, Windsor.

CARROTS IN PITS.—If an early supply of young Carrots is desired, a sowing should be made as near the middle of December as possible. If unheated brick pits are available for the purpose, there need be little fear of the result. The pit should be thoroughly cleared out and a fresh bed of leaves introduced, so that a mild and lasting bottom heat may be obtained. The leaves should be at least 4 feet deep, in order to provide sufficient warmth for the Carrots all through the winter. They should be placed in the pit to ferment for a short time before they are made into a bed. When they have been turned and trodden tightly so that no sinking takes place, they should be covered with a layer of sifted soil to the depth of 8 inches, the top being within 1 foot of the glass. It is a mistake to make the soil too light or to leave it loose on the bed. If moderately dry, it may be beaten with the back of a wooden rake and made level with the same implement. The seeds should then be sown broadcast and covered lightly with fine, sifted soil, which should be moist, so that no water will be needed until the seeds germinate, when a gentle watering should be given through a fine rose can. Rain water should, if possible, be used for the purpose. A covering of some kind should be provided for use in frosty weather. The young plants must not be exposed to cold draughts, and they should be thinned to 2 inches apart as soon as they are large enough to handle. For the first sowing select Parisian Forcing and afterwards Early Gem and Scarlet Horn. Radishes are sometimes sown amongst early Carrots, but this is not a good practice, as the Radishes often spoil the Carrots. It is better to grow the Radishes by themselves, treating them in the same way as the Carrots.

LETTUCES.—Lettuce plants in pits will require careful attention for the next two months. When the weather is fine, air should be given freely by tilting the lights; during very mild weather air may be admitted at the top of the frames all night. Stir the soil frequently with a small hoe and do all that is possible to keep the plants in a healthy condition. Excessive dampness is the chief thing to guard against with this crop during winter. Slugs may be kept in check by sprinkling dry lime frequently round the edges of the pits. If the stock of Lettuces intended for spring planting is below the requirements, a sowing of some suitable variety should be made at once in a cold frame where the soil can be raised to within 1 foot of the lights. If properly hardened, the plants from this sowing should be ready to plant in some sheltered position about the end of February. May King is one of the best Cabbage Lettuces for this purpose; it matures early, the heads being of a good size and fine in quality.

POTATOS IN PITS.—If very early Potatoes are required, preparations for this crop should be made at once by selecting the "seed" tubers and placing them in shallow trays, where they will soon start into growth. They may be planted as soon as the young shoots are $\frac{1}{2}$ inch long. A hotbed should be made almost entirely of leaves, as they produce a mild and lasting heat, which is of great benefit to this crop during cold weather. The bed should be made up to within 2 feet of the roof-glass and should be covered with soil to the depth of 8 inches. Soil from an old Melon or Cucumber bed is suitable. Plant the tubers in rows formed 18 inches apart and allow 9 inches between the sets. When the haulm appears above the surface, air should be admitted in quantity sufficient to keep the plants from becoming drawn, but cold draughts must be prevented. If only an occasional dish is required, early Potatoes may be grown in pots in any house where mild forcing is being carried on, such, for instance, as a Peach house. Fill pots 10 inches in diameter with turfy loam to within 4 inches of the rim, leaving the remainder of the space to be filled when it becomes necessary to earth up the plants. May Queen is a reliable variety for forcing, and three sets will be sufficient to place in each pot.

FRUITS UNDER GLASS.

By E. BUCKLEY, Gardener to the Hon. Viscountess, Aldenham House, Hertfordshire.

VINE BORDERS.—Where it is intended to form fresh vine borders, the work should be commenced with as little delay as possible, selecting, for preference, frosty weather or when the ground is not very soft, so that the wheeling of the soil may be an easy operation. Old borders that are to be renewed should have the old soil and the drainage materials removed, so as to make a fresh start entirely. When the trench is excavated, it will be seen what the requirements as to drainage are, and this matter will depend upon the situation. Where the soil, and especially the subsoil, is of a tenacious character, the bottom of the border should be covered with a layer of concrete, on which to place the drainage materials. It is a matter of dispute as to whether both outside and inside borders are desirable, but whilst a combination of the two has its advantages, in cases where very early supplies are needed, and for Muscat Grapes, inside borders are best, because then the roots are more under control. Where a wide, single border exists the roots will receive all they require if fed with manures and mulches during the growing season, but in this case the roots must be prevented from growing beneath the foundations, and whilst the border is being made, it affords an excellent opportunity for bricking up the foundations, if considered desirable for the purpose. Whether it is intended to plant vines newly raised from "eyes" or, on the contrary, dormant canes, it is desirable to make the bed now and allow the soil to settle before planting. When the drainage materials have been placed in position, whole turves placed grass-side downwards should be laid on the top to prevent the finer particles of soil filling the interstices. It is wise to form the border partly at first, adding to its width each year, rather than place a great bulk of soil at one time, only to become sour before the roots penetrate it. For young vines the bulk of the soil should consist of good, friable loam that has been stacked for a twelvemonth before use and which is free from wire worm. The use of animal manures should be avoided, especially those of a quick-acting nature. Crushed bones or a vine-border compound, mortar-rubbish, wood-ashes and soot should be mixed thoroughly with the loam. Make the border firm as the work proceeds, and complete the first section by a wall made with whole turves.

TOMATOES.—Tomatoes in winter require very careful watering. Assist the roots occasionally with applications of weak liquid manure and at other times with a slight top-dressing composed of finely-sifted loam and artificial manure. Maintain a dry, buoyant atmosphere, admitting a little fresh air when the weather permits. The plants at this season require the maximum amount of light to prevent the foliage becoming enfeebled. An excess of either water or manure will favour fungous disease in the foliage, so that no attempt must be made to force the plants into bearing. Should the leaves show signs of infection, dust them with black flowers of sulphur. Maintain a night temperature of from 50° to 55°.

THE HARDY FRUIT GARDEN.

By W. HEDDER WARREN, Asst. Chief Gardener, Buckinghamshire.

CANKER. Certain varieties of fruit trees are more susceptible to attacks of canker than others, therefore trouble from this disease may be largely avoided by making a careful selection of sorts, and planting the trees in suitable borders. Various causes contribute to canker, amongst them being damaged bark caused by bruising, injudicious pruning and an unsuitable sub-soil. The trees should be dressed periodically with the substance recommended in a former Calendar (see p. 289). Directly the disease makes its appearance, the affected part should be cut clean away, the cut surface carefully pared, and afterwards dressed with a styptic, so that no moisture may lodge thereon. Some dress the wound, and, when it is perfectly dry, plaster the affected part with a mixture of moist cow dung and clay, to which a little soot has been added. This covering usually remains in position without

being in any way secured to the branch of the tree, and gives excellent results. When trees are badly affected through growing in an unsuitable soil, or when the sub-soil is at fault, it is useless to apply any remedy before the ground is properly drained, and new soil added. Young trees will often recover from canker when these faults are remedied. It sometimes happens that a large wound is made in the bark by accident, in which case, if the tree be healthy, the wound will heal naturally; but it is well to pare the damaged parts with a sharp knife, so that the surface is made as smooth as possible, afterwards dressing the wound as advised above. Trees affected with gumming may be treated in a similar manner.

GENERAL REMARKS.—Continue the pruning of orchard trees, as previously advised, during mild, open weather. When it becomes necessary to remove a large branch, the wound should be covered with paint or varnish to keep out the wet and prevent decay. Scrape and clean the stems of old trees, afterwards washing them with a mixture of soft soap and water, or lime-wash. See that newly-planted trees are properly secured to stakes, and the surface of the soil above the roots well mulched with a dressing of half-decayed manure. Every advantage should be taken during mild weather to get as much of the pruning and nailing of wall trees completed as possible, as very cold weather will bring all outdoor operations to a standstill, thus compelling any of this work still unfinished to be deferred till the spring, when so many other important operations require attention. Apricot and Peach borders should be well mulched with any suitable material that may be at hand. If the natural soil be light and porous, half-decayed manure is to be preferred to long, strawy dung, but this latter kind may be used if the soil is cold and heavy. Such a dressing will save the roots from injury during severe frosts, and the trees will, in consequence, be better able to meet the demands made upon them in the spring. During frosty weather new drains may be laid, fresh borders made, and any other ground work carried out. In wet weather, work may be found for the staff under cover in repointing, cleaning, and painting stakes, also getting ready shreds and tying materials; all these will be required later, and, perhaps, hurriedly. Decaying fruits should be removed from the fruit room.

THE FLOWER GARDEN.

By R. P. LINDSAY, Gardener to the Earl of Devon, Devonshire, and to the Earl of Devon, Devonshire, Devonshire.

HEDGES.—Garden hedges usually receive plenty of attention in trimming and pruning, but they are sometimes neglected at the roots, which are allowed to grow unrestricted to the detriment of other crops growing close by. The roots should be restricted to a space about 2 feet or 3 feet wide on either side at the time of planting and kept within bounds every other year. There are large Yew hedges in these gardens that have only a width of 5 feet in which to root, and yet the hedge grows well. The present is a suitable time to root-prune hedge plants. Open a narrow trench that will allow a spade to be easily forced about 2 feet down, severing any roots that are growing beyond the limits. Time spent in root pruning will be saved when trimming the top growth, as this will be restricted. As a rule, a Box hedge needs little pruning, and then only at long intervals. Yew and Privet are the most encroaching of all hedge plants, and should other shrubs be left unpruned these, at least, should be restricted at the roots. Besides the shrubs named, Thuja Lobbi is excellent for tall fences and requires less attention than most kinds of trees or shrubs. In the warmer districts, Viburnum Tinus Laurustinus, forms a very handsome and large hedge, needing to be knife pruned only in early summer. Cotoneaster Simmondsii is suitable, whilst Holly is always to be recommended, the Golden Holly, especially, having a very rich effect. There is a remarkably fine hedge of Ilex Hodgkinsii at Barton in Midlothian. It must always be borne in mind that Hollies exhaust the soil, and when this has been done the plants become subject to canker and they even die. Surface-dressings are essential to preserve old Hedges of

Holly in health. A hedge of Sweet Briar at Tynningham is delightful during the summer months for its perfume. But it requires a lot of attention, the growths needing trimming many times, and occasionally the plants have to be cut level with the soil to induce shoots to develop from the bottom. Lavender also is a troublesome subject as a hedge, and is useful only as a low dividing plant. Common Ivy trained up a light trellis such as wire netting is one of the very quickest plants to form a hedge. The Wichuraiana Roses have no doubt a future before them as hedge plants.

SPANISH IRIS.—Any bulbs of Spanish Irises not yet planted should be put into the ground without further delay. In some soils they live for a few years only, but they are so cheap that their loss is not to be deplored so much as expensive and rare bulbs. There is now a very large number of varieties, the following being a good selection for ordinary garden decoration and furnishing cut blooms:—Belle Chinoise, yellow; British Queen, white; Filifolia, blue, all these are early-flowering sorts; Midley, light blue; Leander, yellow; Hercules, bronze; and Bronze Queen. The bulbs need not be placed wider apart than 4 inches. The planting of Ixias, too, should be finished by now. The flowers are very varied in colour, and the spikes charmingly graceful. They should be given a warm position, planted rather shallow, and protected on the surface for the next ten weeks. Viridiflora is perhaps the most beautiful variety, but Rosa plena, Prince of Orange, Azurea, Crateroides Major, Lady Slade, prestans, and Hogarth, a very late variety, are also beautiful. They do well planted at the same distances apart as recommended for Spanish Irises. At present Muscari are being planted, and there is yet time to plant the pretty Scilla italica.

THE APIARY.

By CHILTON.

BEES AND THE FERTILISATION OF FRUIT.—

The small holder has failed in many instances to grasp the idea that bees are necessary where fruit trees are grown, for fruit trees are often unfruitful, though an abundance of bloom is produced, because many varieties of Apples especially are self-sterile, and are consequently termed "shy" bearers. By the introduction of bees "shy" bearers have been converted into heavy croppers; even one hive in an orchard has worked wonders. Some time ago an orchard had been producing inferior crops and was the despair of the owner; but on the advice of a friend three colonies of bees were established in its midst, and the results surpassed the market gardener's wildest dreams. The trees had even to be heavily thinned; nor was this extra crop the only gain, for there was honey and wax in excess to the value of £3 10s. Unfortunately, orchards are often planted in blocks of one variety; then the introduction of bees will not overcome the difficulty, for the pollen produced will not fertilise the variety, although it is brought from another tree. There are many instances, too, especially among Pears, where the pollen may produce an abundance of fruit, but the resulting fruit is much smaller than would be the case were the pollen obtained from another variety. If the truth of this be doubted, blooms of any particular variety can be covered with muslin; some of them can be fertilised with pollen from the same variety and others cross-pollinated, and the results carefully compared by weighing and measuring the fruits. The number of fruits resulting from the number of blooms pollinated will differ so widely as 3 or 4 per cent. the self-pollination to 30 per cent. in the cross-pollination, in addition to being finer specimens. Then, too, it will be seen that even the pips of the former will be much smaller and less plump than the latter. It may be urged that other insects do this class of work. Quite true, but when fruit trees are in bloom there are few other insects on the wing except bees, for these latter will number 25 to 1 of all others. It must not be imagined that bees will make a crop certain when blooms are plentiful; not so, for a rainy season will cause failure, and it is often wet when fruit trees are in bloom; consequently, bees are confined in the hives. Pollen is seriously damaged with rain and made almost useless.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be well written, and should not be too long, and should be sent by post, and not by hand, and should be signed by the writer. It is desired, the signature and name should be left as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or for any other correspondence, unless by special arrangement. Local news and local transactions are not for any reason, expressed or otherwise, to be considered as a guarantee of good faith.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, and any matter which is desirable to bring under the notice of horticulturalists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, NOVEMBER 9—

British Gard. Assoc. (Birmingham and Mollard Branch), 10.30 a.m. on the "14th Century Garden" Association and Its Objects," by Mr. W. W. Pettigrew.

MONDAY, DECEMBER 11—

United Hort. Benefit an 1 Prov. Soc. Com. meet. Kent Commercial Fr. Sh. at Ashford (12 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich.—41.5°.

ACTUAL TEMPERATURES.—

LONDON.—Wednesday, December 6 (6 p.m.): Max. 46°; Min. 35°.

GARDENERS' JOURNAL Office, 41, Wellington Street, Covent Garden, London.—Thursday, December 7 (10 a.m.): Bar. 24.1° Temp. 45°; Weather—Raining.

PROVINCES.—Wednesday, December 6: Max. 50° Cornwall; Min. 30° Cambridge.

SALES FOR THE ENSUING WEEK.

MONDAY—

Dutch Bulbs, Herbaceous Plants, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 11.

WEDNESDAY—

Dutch Bulbs, Perennials, &c., at 11; Roses in large variety, at 11; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

Choice Imported and Established Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

**The
Strength
of Wheat
Flour.**

At a meeting of the Bio-chemical Club, held recently in the School of Agriculture of the University of Cambridge, Professor T. B. Wood gave an account of a simple method which he has devised for determining the strength of Wheat flour.

The quality known as strength—that which gives to flour the power to form a good upstanding loaf—is of great commercial importance, and has been shown to be due to the association of mineral salts with the gluten of the flour. Hitherto the only satisfactory test of the strength or weakness of a given flour has been the baking test: and it is the practice—for example, in Canada, where one of the Wheat breeders' chief objects is to raise varieties of Wheat which are at once "strong" and heavy yielders—to make numerous and laborious baking tests, each of which requires a fair amount of flour not always to be obtained from the grain of single plants.

The value of the new test lies in the facts that it takes a very short time to carry out, and that it requires but a small quantity of flour.

Since the problem before the breeder is to combine the quality of strength with other desirable characters, the mode of inheritance of the former quality requires

to be known with certainty. Professor Biffen has produced evidence to show that when a weak Wheat (Rivet) is crossed with a strong Wheat (Red Fife), the characters segregate in the second generation in typical 3:1 Mendelian fashion.

This conclusion, which as indicated already is of great importance commercially both to this country and to Canada, is disputed by other observers. Hence it became necessary to work out in full detail the mode of inheritance of strength with a view to confirming or amending Biffen's results. By Professor Wood's method this is comparatively easily done. The new method is based on the observation that the watery extract made from a strong Wheat is opalescent, and remains opalescent after filtering, whilst that made from a weak Wheat is practically free from opalescence. Further, the addition of a weak solution of iodine renders the opalescent watery extract yet more turbid, whilst it is without effect on the clear solution obtained from the weak Wheat. So, in order to compare two Wheat plants with respect to strength, all that is necessary is to grind the grains, to extract each sample of flour with water, to add a given amount of iodine to each, and then to determine in either case through what thickness of fluid a light—for example, a small electric light—is just visible. The opalescence of the extract from the strong flour (to which iodine has been added) causes the light from the electric lamp to be invisible even when only a thin layer is interposed between the eye and the source of light; the greater clearness of the extract from the weak Wheat necessitates the interposition of a much thicker layer of the fluid in order to produce the like result. Thus strength and weakness may be expressed in terms of thickness of layer of extract required to just extinguish the light from a constant source.

The difference between strong and weak flour in this respect is so marked that there is no difficulty of classifying any unknown sample as strong or weak after submitting it to this simple test.

An interesting and practical vindication of Professor Biffen's contention that strength of wheat and high yielding capacity are characters which can be bred true and combined in a plant is provided by the result of the Dorchester grain show, held on October 7, where, according to *The Times*, the champion prize for wheat was won by Mr. H. J. Standfield, Barford Farm, Wimborne, with a sack of Burgoyne's Red Fife Wheat. This exhibit was from a crop which yielded 48 bushels per acre. *The Times*, in commenting on this Wheat, states that it was described by judges and others as the best Wheat ever seen at the show. Burgoyne's red Wheat is of the choicest quality, and combines the milling properties of Red Fife with the prolificness of the English standard varieties.

APPOINTMENT.—Mr. C. O. FARQUHARSON, B.Sc., of the University of Aberdeen, has been appointed by the Secretary of State for the Colonies, on the recommendation of Kew, mycologist in Southern Nigeria.

NATIONAL ROSE SOCIETY.—The thirty-fifth annual general meeting of the members of the National Rose Society will be held at the Westminster Palace Hotel on Thursday, the 14th inst., commencing at 3 p.m. A conversation will be held from 4.30 to 6 p.m., and during the proceedings the President, Rev. J. H. PEMBERTON, will deliver an address on some subject of interest to Rosarians. Members are entitled to attend the conversation free and to purchase tickets for friends at 2s. each. The Secretary, Mr. EDWARD MAWLEY, invites an early application for tickets in order that he may complete the arrangements.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting, being the first of the two afternoon meetings arranged for the convenience of country members, will be held in the Lecture Hall of the institution on the 11th inst., at 8 p.m., when a paper will be read by Mr. W. A. HAVILAND, entitled "The Burden of Upkeep on Rural Estates and its Relief under Section 69 of the Finance Act, 1910."

THE TEACHING OF BOTANY.—The London County Council's Education Committee is proposing to increase the staff at the botany depot at Avery Hill, in order to meet, as far as possible, the demands for botanical specimens made on behalf of about 600 additional departments of schools, which cannot at present be supplied with such specimens owing to the limited staff. The existing staff comprises nine officers, a superintendent, three senior collectors, three junior collectors, a temporary clerical assistant, and a boy, the expenditure in staff being £800 a year. This staff is barely sufficient to cope with the requisitions received from the 630 schools and educational institutions to which the scheme is at present applied. It is now proposed to increase the staff by an additional senior collector and three additional junior collectors at an estimated increased cost of £370, in order to allow of the extension on the present lines to about 500 additional schools. This will utilise to the full the capacity of the existing premises, and will not involve any increase in the accommodation or any structural alteration. There are at present large numbers of both provided and non-provided schools, especially in congested areas, where specimens are urgently required. Under the new arrangement, the cost of a fortnightly supply of botanical specimens would be £1 8s. 6d. per school per annum.

A PAINT-DESTROYING FUNGUS.—Specialisation is, at it were, a reply on the part of the organism to the challenge thrown down to it by the "struggle for existence." Nowhere is this specialization so strikingly illustrated than among the fungi and bacteria. Thus, yeast is probably the only organism which can support life in a 15-20 per cent. solution of alcohol; though it is stated that a bacterium lives happily on rum. Mr. MASSEE describes in the *Kew Bulletin* (No. 8, 1911) an equally remarkable organism which specialises in the destruction of paint. As a consequence of this habit, this fungus flourishes in hot houses, where it may do no inconsiderable damage. Experiments made by Mr. MASSEE show that when this paint-destroying fungus, which he names appropriately *Phoma pigmentivora*, is cultivated in linseed oil, it remains uncoloured, but when the spores are sown on a streak of wet paint, they germinate, and produce rosy blotches, which become deep purple in the course of a few weeks. The striking colour appears to be due to the production of an oxide of lead from the white lead (carbonate) used in the paint. By the addition of carbonic acid (2 per cent.) to paint, the spores of the fungus are prevented from germinating, and the work of painting the house is not rendered useless by this pest.



Photographs by H. N. King.

ICKWORTH PARK, SUFFOLK, THE RESIDENCE OF THE MARQUIS OF BRISTOL.

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"BOTANICAL MAGAZINE."—The issue for November contains illustrations and descriptions of the following plants:—

Caladium pubescens, tab. 8402.—The flowers of this interesting Aroid bear a certain resemblance to our native *Arum maculatum*, but the spathe is white within and greenish-white on the exterior. It was introduced by Mr. FORGET from Peru, who sent plants to Messrs. SANDER & SONS, St. Albans: the illustration in the *Botanical Magazine* was prepared from specimens presented to Kew Gardens by Messrs. SANDER. The species is remarkable for its pubescence, only one other *Caladium* being known to possess hairs. The plant flowers freely in a tropical, moist house under treatment usually afforded the members of this genus.

Rhododendron japonicum var. *postulatum*, tab. 8403.—This beautiful *Rhododendron* is a native of the mountains of Central Japan, and is known in gardens as *R. Metternichii*. At Kew the plant forms a low, spreading bush, producing showy trusses of soft, rose-coloured flowers.

Leonotis dysophylla, tab. 8404.—The Lion's Tail, *Leonotis leonurus*, is a well-known plant in gardens, and closely resembles the species under notice, except in the colour of the flowers, those of *L. dysophylla* being orange-scarlet. Plants of *L. dysophylla*, raised in the Cambridge Botanic Garden from seeds sent by Mr. G. THORNCROFT, from Barberton, Transvaal, supplied the material for the illustration in the *Botanical Magazine*.

Phyllocladus amabilis, tab. 8405.—*Phyllocladus amabilis* is a low-growing, Ericaceous shrub, having clusters of flowers at the tips of the twigs. The corolla is white, tipped with pink, each segment possessing a rose-coloured line. The plant forms a suitable subject for the rock-garden, and specimens grow well on the rockery at Kew in a mixture of peat, leaf-soil and sand.

Ruellia devosiana, tab. 8406.—This species has been confused with *R. schaueriana*, from which it differs in the indumentum on the stem and leaves and the shape of the ovary. *R. devosiana* forms a compact little shrub, suitable for growing as a basket shrub or as a trailer in a warm house. The white flowers have a lilac line along the centre of each petal, and are produced in the autumn.

The December issue of the same magazine gives illustrations and descriptions of the following plants:—

Aciphyllia latifolia, tab. 8407.—This umbelliferous plant is one of the most conspicuous features of the flora of the Auckland and Chatham Islands. The flowers are of a purplish colour. The plant is uni-sexual, and that introduced by Captain A. A. DORRIEN SMITH is a male specimen.

Rhododendron spinuliferum, tab. 8408.—The red, tubular flowers of this dwarf *Rhododendron* are very pretty; the plate shows them in fours at the ends of the branches. The species is a native of China, where it was first discovered by FRANCHET, and the specimen which supplied the material for the *Botanical Magazine* figure flowered in Mr. M. L. DE VILMORIN's garden at Les Bâtes. Unfortunately, doubts are expressed as to its hardness in this country, except in the most favoured parts.

Symbegonia pulvo-villosa, tab. 8409.—The genus *Symbegonia* is endemic in New Guinea, and includes four species, all having uni-sexual flowers. The female flowers of *S. pulvo-villosa* are pale-yellow with their perianth-segments united. The plant is of a branching habit, not more than 1 foot in height, and most of the shoots die down in winter. Cuttings root readily.

Pitcairnia tabuleformis, tab. 8410.—This is an old garden plant, requiring a stove temperature. The leaves are 4 to 5 inches long with an undulate margin, and possessing a narrow white border. The inflorescence forms a dense, many-flowered raceme, the petals being a bright orange colour.

Prunus Sargentii, tab. 8411.—This beautiful flowering tree closely approaches *P. serrulata*, better known in gardens as *P. pseudo-cerasus*. *P. Sargentii* was raised in the Arnold Arboretum from seeds collected in Japan in 1890 by Dr. BIGELOW. The flowers are very handsome, being rose-coloured, whilst the foliage is said to assume a dark red colour in autumn.

NATURALISATION OF TREES.—Owing to a variety of causes trees generally do not readily naturalise. On the authority of CHEESEMAN'S *Manual* about 530 alien species of plants are more or less permanently established in New Zealand, and of these only three are really arboreal, namely, the Elderberry and two Willows, *Salix babylonica* and *S. fragilis*. But Dr. COCKAYNE records a remarkable instance of the naturalisation of an Australian Gum tree in New Zealand, and the conditions under which it has progressed. The record runs as follows:—A plant may remain quite isolated for years and be apparently incapable of spreading, but an unlooked-for change of conditions may give it just what it requires. At Waitaiti, on the land belonging to the Mental Hospital, stands a fine example of the Stringy Ash (*Eucalyptus numerosa**) more than 50 years of age. Originally the vegetation of the place was mixed forest, but this had been replaced by a close growth of Manuka Heath (*Leptospermum scoparium*). Some 10 years ago this was burned in the neighbourhood of the tree, and a young forest of Gums, several acres in extent, has sprung up; the new ground and the potash from the fire being eminently suitable for the germination of the Gum tree seeds. At the present time the Gum saplings grow extremely closely, and their height is from 40 feet to 50 feet. Some are half a foot in diameter, while others are extremely slender. Thousands of Manuka seedlings sprang up along with those of the Gum, and it must not be forgotten that Manuka, far more than most of the indigenous plants, can reproduce itself again and again after burning, and can exclude almost all other vegetation. But in this case the greater rapidity of growth gave the Gums the victory, and now only a little Manuka remains near the margin of this remarkable and quite natural forest growth.

ELECTRIC CULTURE.—A demonstration in connection with electro-chemical culture will be given on Saturday, the 9th inst., at 4 p.m., at the Royal Botanic Society's Gardens, Regent's Park. An electric apparatus will be in operation, showing the effect of electricity on the germination of seeds.

UNIVERSITY OF CAMBRIDGE: FOURTH ANNUAL REPORT OF THE FORESTRY COMMITTEE. The report of the Forestry Committee contains, besides an account of the work done by students, the following items of general interest. Further experimental sowings of Elms have been made during the past summer; and seedlings of the "English" Elm (*Ulmus campestris*), which are unknown in England, have been raised in large quantities from seed borne by trees in the royal park at Aranjuez, in Spain, which are reported to have been introduced from England in the reign of Philip II. Experiments were made during last spring in crossing trees both in Devonshire and at Kew; and a consider-

able quantity of hybrid seed has resulted, the most of which will be sown next spring. A few hybrid seedlings of Elms have been obtained already. In last year's report, the reader referred to the need of museum and laboratory accommodation for teaching and research in forestry. An appeal has been made for the funds required for this purpose, and generous donations have been already given or promised. Among the subscribers are:—H. J. ELVES, Esq., F.R.S., £1,000; David Davies, Esq., M.P. (King's College), £500; Messrs. N. M. Rothschild and Co., £500; Lord Iveagh, £250; the Surveyors' Institution, £210; the Worshipful Company of Mercers, £200; Earl of Powis (St. John's College), £100; Sir Dorab Tata (Gonville and Caius College), £100; Dr. Herbert Watney (St. John's College), £100; M. P. Price, Esq. (Trinity College), £100; the Worshipful Company of Carpenters, £52 10s.; Lord Peckover (St. John's College), £50; Sir John Stirling Maxwell, Bart. (Trinity College), £50; Sir Eustace Gurney, £50; Cecil Hanbury, Esq. (Trinity College), £50; and M. R. Pryor, Esq. (Trinity College), £50; making, with other donations, a total exceeding £3,600.

POTATO COMPETITION.—The seventh annual Potato-growing competition has just been held by the Hallam Fields Garden Association, at Ilkston, a small, but successful society, with a membership of about 54, chiefly colliers. The competition consists of three tests, the first of which includes planting from "seed" tubers. Each competitor was given 1 lb of seed Potatoes of the variety "Superlative;" these had to be planted and grown out-of-doors, the time limit being fixed between April 1 and September 30. Each competitor was allowed to cut his Potatoes into as many sets as he desired, the object being to produce the greatest weight of tubers from the pound of seed. The results throw some light upon the subject of the relative value of large and small sets. The first prize-winner cut his pound of seed into 110 sets, which produced 161 lbs.; while the second prize-winner had only 67 sets, yet his produce from little more than half the number of actual roots was only 8 lbs. behind. The opinion prevails among these garden-holders that when the tubers are cut into very small sets they are more liable to become affected by disease. The greatest yield from a single root was 11 lbs. of Potatoes, whilst the heaviest tuber weighed 1 lb. 9 ounces.

STATE AID FOR THE POULTRY INDUSTRY.—In August last the provisional committee of the National Poultry Institute made application to the Treasury from the Development Fund to the amounts of £8,500 for establishment and equipment, and of £2,000 annually for maintenance of a central institute for the provision of higher instruction and conduct of research and experimental work in poultry keeping, and on November 13, representatives of this committee gave evidence before the Commissioners in support of their application. At a recent meeting of the provisional committee, a letter was submitted to the effect that the Development Commissioners are prepared to recommend to the Treasury to make advances from the Development Fund to something like the amounts mentioned, conditionally (1) that a permanent form of incorporation is given to such institute; (2) that an adequate scheme is adopted providing for higher educational work, practical investigation; and the work of training experts; and (3) that half the capital and annual sum required is provided from other sources. It was resolved by the provisional committee that efforts be put forth immediately to carry out the recommendations of the Commissioners, to which end it will be necessary to secure at least £8,500 towards the cost of establishment and equipment, and of £2,000 in annual subscriptions.

* This species remains probably the only one for which the name *Salix* is a synonym of the generic *E. obliqua*.

SANDGATE ARBOR DAY.—Arbor Day was celebrated at Sandgate for the first time on the 30th ult. The proceedings began with a meeting at Castle Glen, when Sir JOHN ALEXANDER COCKBURN, K.C.M.G., Lieut.-colonel PENFOLD, the Mayor of Folkestone, and other visitors were received by the Committee of the Society. Tree-planting commenced at half-past two, and members of the authorities of the three towns took part in the proceedings. Sandgate is a town without a boundary, and is situated in the middle of the Parliamentary borough of Hythe. The area within the jurisdiction of the Urban District Council is only a part of that now in the postal district of Sandgate. It includes the Riviera, and extends eastward as far as Cliff House (the residence of Lord RADNOR) and westward to Hythe. Trees were planted in the Castle Road, the High Street, and on Castle Green, the trees selected being the Mountain Ash, Acacia, Lime, and Austrian Pine.

ICKWORTH PARK.

(See Supplementary Illustration.)

AN easy journey of three miles to the south-east of the ancient town of Bury St. Edmunds brings the visitor to the lodge gates of Ickworth Park, the Suffolk residence of the Marquis of Bristol. The carriage drive leads over gently rising ground through a portion of the magnificent park, which has a circumference of 16 miles, with ample green-sward, wide-spreading Oak and Beech trees, and here and there an ancient Thorn, heavily laden with red fruits, to the "Porter's Lodge," which gives access to the mansion and gardens. As will be gathered from the view of the central portion which appears in the Supplementary Illustration, the mansion is built in the Ionic style, and is a copy of the Coliseum, the figures representing the various Olympic games. The building was commenced in 1795 and the original design included wings intended for the reception of rare paintings and sculptures. Various vicissitudes, culminating in a shipwreck, robbed Ickworth of all the art treasures save one, which now stands in the entrance hall, and so the wing intended for their reception was transformed from a temple of arts into an orangery. In front of the orangery there is a sunken tennis lawn with specimen Cupressus sempervirens at one end. Flower-beds divide it from the very broad walk which leads from the chief garden entrance to the outer terrace. This wide gravel promenade, which is built up on arches, gives a splendid view of the broad acres of Ickworth. In front, away as far as the eye can reach, stretch cool green-sward and ancestral trees; to the left the ground slopes into a wide valley. On the distant hillside, skilfully placed groups of trees delight the eye at all seasons of the year, whilst the gentle-eyed fallow deer placidly grazing on the slopes complete the picture. The inner side of the terrace walk is bordered by a low, rounded Box hedge, over a quarter of a mile long. From the terrace steps to the mansion on each side of the walk there are tall hedges of Box and Yew, happily blended, from which diverge similar avenues with mown paths, leading to various enclosures, such as a formal Rose garden with Roses climbing on poles and with a fine weeping specimen of the variety *Gardenia* occupying the centre bed. On the right a side avenue leads to a quiet retreat surrounded with trees, and containing stores from the Giant's Causeway. Another vista reveals a fine Tulip tree, whilst a fourth discovers an informal garden containing Ferns and parallel fences clothed with Rose Feljenberg, which blooms freely, even under the partial shade of the *Flexes* and other trees. The west front of the mansion is embellished with many flower-beds, in which the favourite flowers of Lady Bristol, who takes a keen interest in horticultural

matters, are grown. Standard *Heliotropes* of the darker-coloured varieties diffuse a pleasant perfume, and a great variety of *Pelargoniums* with scented leaves is grown. In a recess outside the picture gallery, which contains priceless treasures, there was an exceedingly fine row of *Amaryllis Belladonna*.

Ickworth is full of pleasant surprises: after having seen the Rose garden, in its Box and Yew enclosure, we, not unnaturally, concluded that we had seen all the Roses, but on leaving the conservatory and its fine Palms, *Hedychiums* in bloom, pillars of scarlet *Pelargoniums*, and its roof clothed with Roses and *Browallia* (*Streptosolen*) *Jamesonii*, Mr. Herbert Coster, who for the last two decades has so admirably managed the gardens, led the way to yet another Rose garden. This most delightful spot is enclosed by red brick walls, to which many winters and summers have given a mellow tone. Here the Roses are grown in long Box-edged beds, and bear quantities of fragrant blooms. The walls are clothed with many interesting plants; close to the Rose-covered arbour there is a very old plant of the lemon-scented *Verbena* (*Lippia citriodora*); a Pear tree is grown for the sake of its blossom in the spring. In this sun-trap, the Fig, planted away from the walls, bears luscious fruits. Outside this charming garden there is an immense Oak tree partly overshadowing a circular flower-garden with gravel paths. Here, of course, a brilliant display is impossible, but the plants are all well cared for, and this spot makes a very pleasant retreat during the hot, sunny days.

THE ROMAN CYPRESSES.

It is interesting to speculate on the origin of the Italian influence in the mansion and grounds at Ickworth. As we have remarked, the house is a copy of the famous amphitheatre of Rome; the terraced walks, the formal alleys of Box and Yew are all of the Italian style, and there are literally hundreds of the true upright Roman Cypress in various parts of the grounds. This Italian manifestation is perhaps simply the result of the enthusiasm for things Italian which was the vogue of the early part of last century. That was the period of Italian gardens in our country, and many of the finest examples were laid out at that time. But the probable influence of the town of Bury St. Edmunds must not be overlooked. It will be remembered that not only is that ancient town (the capital of East Anglia) remembered in history as having been the seat of several Parliaments, and as the site of the murder of the Saxon King St. Edmund by the Danes in the year 870, but that there is also in Bury St. Edmunds the ruins of the Benedictine Abbey founded by Canute. Competent authorities consider that the Roman villa Faustini was situated at Bury St. Edmunds, so it will be seen that there has for very many centuries been a strong Roman influence in this neighbourhood, and the Bristol estate offices are situated in the old abbey. The front wall supports an exceedingly fine *Tecoma grandiflora*—reputed to be 400 years old— which flowers freely.

At Ickworth there seem to be Roman Cupresses (*Cupressus sempervirens*) everywhere, and very many of them are beautiful specimens. The Cupresses are planted in avenues, in groups, as single specimens (a few may be seen in the illustration), and in the shrubberies. The tallest is 47 feet high, and its girth 6 feet 11 inches at the ground line. Most of the trees, which have grown to be typical specimens—veritable green pillars—are bearing quantities of their large cones, and it is hoped that these will, this season, yield a crop of fertile seeds. The rich soil of Ickworth evidently suits the many specimen trees which have been planted on the lawns. Cedar and the Redwood (*Sequoia sempervirens*) grow exceedingly fast. A fine *Photinia serrulata*, fully 20 feet high, and well furnished with handsome leaves, must be a very striking example in the spring, when it sends out its purple young leaves, more beautiful than many flowers. That rare shrub in private gardens, *Phillyrea angustifolia*,

is here quite a tree, with a clean trunk and reaching 30 feet in height. There is also a fine *Libocedrus decurrens* 60 feet in height. Opposite the carriage entrance there are many magnificent Cedars—Cedars of Lebanon with flat, spreading branches; the sacred *Cedrus deodara*, with more delicate outline and pendulous branchlets; and the silvery *Cedrus atlantica*. These trees have been planted at goodly distances apart, and the grass beneath is cut sufficiently often to ensure tidiness without the trim formality of a lawn. Besides these grand Cedars, which are periodically cleared of their dead branches, there is a sprinkling of the genus *Pinus*, and a fine tree of *Taxodium distichum*. The admirer of precise shrubberies, where each shrub is permitted to occupy just so much room and no more, should not go to Ickworth, or his susceptibilities will be sorely wounded. When the shrubberies were planted there was no intention of growing specimens. The aim of the planter was evidently to obtain contrasts of form and foliage, of light and shade, and he has succeeded in an admirable manner. Space will not permit the mention of the many combinations which may be found in these shrubberies, where the Box bushes have grown up tall as trees, with trunks standing so closely together as to form an impenetrable barrier, and where the Sea Buckthorn (*Hippophae rhamnoides*) becomes fully 20 feet high; but the unconventionality is charming. The grass verges of these extensive shrubberies contain quantities of spring-flowering bulbs, so that the interest is sustained between the fall of the leaf and the bursting of the buds.

THE KITCHEN GARDEN.

This important, and very necessary, portion of a well-founded garden does not possess the attractiveness of the pleasure gardens, but, apart from the cultural interest of well-grown crops in a properly managed kitchen garden, such a garden as that at Ickworth, with its old red-brick walls, herbaceous borders gently sloping to a large pond where Water-lilies grow, and where, on the opposite side, the herd of Shetland ponies canter down to the water-side, has more than a passing interest. This $5\frac{1}{2}$ acre garden contains several transverse walks which greatly increase its value. Many of the cross-paths are of grass, kept in far better condition than is the case with some lawns. Gooseberries are a favourite dessert fruit, so a large quarter is allotted to the bushes with their stout branches kept well apart amongst the several rows of fan-trained specimens, which produce large fruits of high quality. The late Grapes still hanging on the rods were large in bunch, and of the fine colour which betokens high quality. Another fruit house contained healthy Fig trees. No first-class establishment is complete without several Peach houses and vineries, and Ickworth is no exception to the rule, and here we also saw many rows of pot Strawberries, with large plump crowns ready for forcing. Outside one of the fruit houses we noticed a large wall plant of the Californian *Aspidistra* bearing numbers of oval fruits. In this pure air frame Violets grow to perfection.

The plant houses contain good, healthy batches of useful plants: *Primulas*, *Cyclamens*, *Zonal Pelargoniums*, &c., for winter flowering. *Nerines* were in full bloom, and many *Calanthes*, which are grown singly in 5-inch pots, were just pushing up very strong flower-spikes. The indispensable winter-flowering *Carnation* requires a house to itself, and there were also many healthy plants of *Begonia Gloire de Lorraine*.

Mr. Coster resides in a pleasant house conveniently attached to the garden, and a few years ago the Marquis of Bristol, recognising its advantage, built a bothy for the young men close to their work. This structure is built against the higher kitchen garden wall, and special care was taken to use weathered bricks so as to harmonise with the older portion. In this sunny house the young men find a comfortable home in their hours of study and leisure. A. C. Bartlett.

ROYAL INTERNATIONAL EXHIBITION.

IN fig. 169 is illustrated a Rose bowl which Messrs. Clay & Son will present to the Royal International Horticultural Exhibition, 1912. It will be awarded for the best exhibit of Roses.

The following description is supplied by the manufacturers, Messrs. Elkington & Co.: The bowl is silver-gilt, with Roses and a floral band in hand-chased repoussé, in high relief, and gilt in natural colours. The bowl measures 13 inches across; its height, without pedestal, is 6½ inches; with pedestal, 10 inches; weight, 80 ounces. The inscription, which is engraved upon a silver-gilt plate attached to the pedestal, reads as follows: "Presented to the Royal International Horticultural Exhibition, May 22nd to 30th, 1912, by Messrs. Clay & Son, Stratford, London, E."

It is proposed to have a detailed inscription engraved within the bowl itself.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

SHREDS VERSUS NAILS.—Mr. Hedley Warren, writing on nailing and stratifying wall trees in the *Gardeners' Chronicle* for November 25, p. 374, stated that it is difficult to improve on the old method of shreds and nails. I find that the patent (Francis) wall nails are much better than shreds. The soft, pliable lead at the end of the nails does not harm the bark; there is no harbour for insect pests; they can be used over again time after time, and a man can get over much nailing quicker than he can with shreds. I am discarding all shreds in favour of them. T. M. Nelson, *The Hall Gardens, Runcorn, Lancs.*

CELERY DISEASE.—My plants have suffered from the disease for the past two seasons. I cannot help thinking that it is through using pig manure. Last season and this year I have had miserable crops, and, like many other gardeners, have only pig manure to use. This season I planted about one thousand plants in five varieties. All went well until August; then the disease started. I did not spray as I should have done, but I also planted a row of celery in the garden at my cottage, using no manure. These latter are as good and as free from disease as anyone could wish. If the disease is present in the seed, can any of your correspondents explain why I have disease in one garden and not the other? P. Shingleton, *Hartwood, near Plover Garden, Hartwood, nr. Sussex.*

—Mr. D. Calthorpe's remarks (see p. 39) on the subject of Celery disease interested me, as I have been troubled with the disease both this year and last. I am entirely at a loss to account for its appearance, as no one else near here has been troubled with the complaint. I can only think that the disease was present in the seed, though this also seems hardly possible, as it was obtained from two different sources. The only manure used was horse-droppings, mixed with nitrate of soda. Neither root nor lime has proved of any avail as a cure. I should be glad to know the opinions of any of your readers with regard to the value of spraying, and whether that is likely to affect the taste of the Celery? W. Smith, *Mayfield, Cann, Dorsetshire.*

THE NUT FLOWERING (see p. 400).—Twelve months ago I had occasion to remove a large Filbert tree early in December, and, on cutting it down, was astonished to see hundreds of female flowers fully expanded; there were no catkins approaching opening. I noted the example at the time for reference this year, but up to the present I have been unable to find any female flowers expanded. T. Skilton, *Love-Lands, Walton-on-the-Hill.*

THE LATE JAMES DOUGLAS.—It was towards the end of 1863—not in 1860—that Mr. Douglas became gardener at Loxford Hall. Hardly anything had been done there in the way of gardening prior to his taking the post, and when he went to interview Mr. Whitbourne, he was only persuaded to accept the appointment by the ad-

vise of one of the servants. After events proved the wisdom of his decision; Mr. Whitbourne was a most considerate master, and provided ample means for Mr. Douglas to carry out his ideas. In the summer of 1866 he made his first exhibit—some fine Pineapples—for which he obtained prizes at the exhibition of the Royal Botanic Society and at the Crystal Palace; in December of the same year the Royal Horticultural Society awarded him two special certificates for Pineapples. The following year he showed Peaches, and was again successful; and in 1868 he exhibited Strawberries and Buckland Sweet Water Grapes. At Stratford he commenced exhibiting Chrysanthemums, both as cut blooms and plants in pots. Mr. Douglas's debut as a writer was earlier than was indicated last week. The *Cineraria* article appeared on March 28, 1867, but his earliest contribution to literature is an extremely interesting review on "Orchard House Peaches," dated December 4, 1866. This was followed a fortnight later by a paper on Ferns, in the *Journal of Horticulture and Cottage Gardener*. A few years subsequently to this, Mr. Douglas secured a tempting offer to transfer the scene of his activities to a large garden in the

EDUCATION IN HORTICULTURE.—May I take this opportunity of thanking the numerous gardeners for their kind letters and willingness to support some scheme of education in horticulture—the formation of an institute or a guild on national lines? In reply to W. W. and others expressing a desire for a meeting to discuss the project with a view to the inauguration of the society at the forthcoming International Horticultural Exhibition, 1912, I am commissioned to make use of the name of the secretary of the North of England Horticultural Society, and to ask all gardeners who would attend such a meeting to forward their names to him—the Rev. J. Bernard Hall, secretary North of England Horticultural Society, Rawdon, Leeds—before December 13, on which date a meeting of horticulturists is being held in Leeds, and the scheme can then be got on a stage further. *County Council Lecturer and Instructor in Horticulture, Durham.*

NON-WARRANTY CLAUSE.—In consequence of the House of Lords, on the hearing of the appeal in the action of Wallis, Son and Wells v. Pratt & Haynes, having decided that, on a sale of



ROYAL INTERNATIONAL EXHIBITION, 1912.

FIG. 169.—ROSE BOWL OFFERED BY MESSRS. CLAY AND SON FOR THE BEST EXHIBIT OF ROSES.

north; he refused, however, preferring to work near London, especially as he had at Loxford almost unlimited liberty of choice in his own sphere. There is a pretty superstition, mentioned in Mr. Dion Calthorpe's *Charm of Gardens* that flowers have an especial affection for certain people, and grow better for them than for others. This would seem to be borne out by the fact that all kinds of plants were amenable to Mr. Douglas's care and treatment. Even when he was quite a boy, to work amongst plants and tend them was his greatest happiness. While he was still an apprentice, he spent the winter evenings increasing his knowledge of horticultural science, and in summer he would roam about the countryside budding Roses on Wild Briars in the hedges, and working in his mother's garden. This latter he made the wonder and admiration of the whole village—a village, too, where gardening was extensively practised, and where every inhabitant was an amateur gardener of skill and taste. B.

ceeds by description, if a seller decided to throw the risk of any honest mistake on the buyer, then he must use apt language, and the clearer he tried to make the language the better, and that they did not think Messrs. Pratt & Haynes had done so in the non-warranty clause they used, which is similar to that used by members of the nursery and seed trade, we, as solicitors for the Nursery and Seed Trade Association, Ltd., have had the non-warranty clause, of which we send you a copy, prepared by counsel engaged in the litigation referred to, and at a meeting of the committee of the Nursery and Seed Trade Association, Ltd., held on the 21st ult., to consider the same, the members passed a resolution that, having considered the clause as prepared by counsel, it should be recommended for adoption by all members and the trade generally, in lieu of the clause hitherto used, as being more definite. Counsel who settled the clause advised that it should be printed in conspicuous type and in

red ink. As a sale is effected when an order is taken and accepted verbally, or by correspondence, we advise that members of the trade should have it printed on all sale notes, invoices, and in catalogues, and on their letter paper, thereby giving full notice of the terms of sale, and preventing customers alleging they were not aware they were purchasing subject to the conditions. *Chas. Batcher & Sons, Subscribers to the Nursery and Seed Trade Association, Ltd.*

CONDITIONS OF SALE.

We believe that all seeds, bulbs, and roots sold by us are of the description and kind specified by us at the time of sale, but owing to the practical impossibility in many cases of being certain of this, we give no undertaking that such seeds, bulbs, or roots will correspond with the description under which they are sold, and we make all sales subject to this condition. We further give no warranty, express or implied, as to their growth, description, quality, or productiveness, and will not be in any way responsible for the crop. If the purchaser does not accept the goods sold to him on these terms, they are at once to be returned to us.

A GARDENERS' CONFERENCE (see p. 400).—There is much that is true in the letter from W. W., and I think it would be an advantage to the gardening community if the step he suggests is taken, i.e., the organising of a conference of gardeners on the occasion of the International Horticultural Exhibition. The need for an association or union of professional gardeners is stronger now than ever before, and in my opinion the time has also come to make a decided step forward in the way of education. In the words of the late Mr. Chas. Foster, quoted from his last letter to me, "the future gardener must look to his guns, or the better-educated college man will do the ordering of things." A national diploma in horticulture might be established, for that analogous to the national diploma in agriculture. A man who obtained this diploma would be recognised as experts, capable of taking up any of the more important horticultural appointments. The present instructors are constantly deploring the fact that greater educational facilities are not obtainable. They realise their deficiencies when they have to meet on equal terms men of college training. It should also be possible to establish certificates for gardeners which would enable them to rank as "gardeners." I do not here intend to make a plea for the establishment of a diploma, nor to lay down the qualifications necessary to secure it. I merely refer to the matter because I think the establishment of a national diploma in horticulture and gardening certificates should follow naturally on the establishment of a national institute of gardeners. I have in mind the National Institute of Architects, which has done so much for the profession it represents; it is the aim and ambition of all young architects to secure the title of F.R.I.B.A. Does W. W. consider such an ambition a worthy one? I think it is a side of the question deserving earnest consideration. *W. B. Little.*

W. W.'s notes regarding the need for an association of gardeners seems to condemn the B.G.A., on the ground that it has not attained its object. If a society of gardeners worthy of the name is to be formed, surely a greater measure of success would be achieved if those nurserymen and gardeners who are Fellows of the R.H.S. were to take the matter in hand. A society might thus be formed on a sound basis, the success of which would be assured. The R.H.S. exists for the promotion of the best interests of horticulture, and it follows that the advantage of those engaged in it ought to be the first consideration of those who belong to the Society. The B.G.A. was formed independently, and from the date of its inception a lack of cohesion has been noticeable among the members. Even if harmony had been preserved, what good can come of fostering a feeling amongst gardeners antagonistic to the interests of the premier Society? Had those who are influential in the B.G.A. sought to attain their objects through and with the assistance of the R.H.S., all engaged in the profession would have regarded it as a genuine effort coming from the right quarter. The support accorded it in these circumstances would, I venture to say, have been of such a nature that there would have been no lack of respect or recognition. *F. W.*

SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 5.—The last of the Society's exhibitions for the calendar year was held on Tuesday last, thus bringing to a close, a series of most successful meetings. The displays of flowers and fruits were not so numerous as at the last show, yet there was plenty to interest visitors, and far more variety than is usually seen at a December flower show. The exhibits of Orchids were, as usual, remarkably good and varied. The ORCHID COMMITTEE granted one First-class Certificate and two Awards of Merit. The chief exhibits before the FLORAL COMMITTEE were large groups of Begonias and Chrysanthemums. The fine American raised variety of Begonia named Glory of Cincinnati was shown exceptionally well by more than one exhibitor, whilst the beautiful hybrid winter-flowering Begonias were shown in splendid form by Messrs. VEITCH, CLIBRANS, and CUTBUSH. THE FLORAL COMMITTEE granted one First-class Certificate and five Awards of Merit. THE FRUIT and VEGETABLE COMMITTEE made no award to a novelty; but there were two excellent collections of hardy fruits, both of which received Silver-gilt Medals. At the three o'clock meeting of the Fellows a lecture on "Motive Organs of Plants" was delivered by J. Bretland Farmer, F.R.S.

Floral Committee.

Present: Messrs. W. Marshall and Henry B. May (Chairmen); and Messrs. Jno. Green W. J. Bean, G. Reuthe, J. H. Barr, R. C. Reginald Nevill, W. G. Baker, Chas. T. Drury, Jas. Hudson, C. R. Fielder, A. Kingsmill, J. F. McLeod, J. Jennings, N. F. Barnes, W. Bain, John Dickson, Charles Dixon, Herbert J. Cutbush, H. J. Jones, F. Page Roberts, Chas. E. Shea, Chas. E. Pearson, Walter T. Ware, E. H. Jenkins, R. Hooper Pearson, and R. C. Notcutt.

Messrs. W. CUTBUSH & SON, Highgate, again showed an assortment of greenhouse foliage, flowering and berried plants, as well as varieties of perpetual-flowering Carnations. The Carnations furnished a bright display of colour, and were shown in large sheaves in tall vases. We noticed a new red perpetual-blooming variety named Mrs. Lucy Mackinnon, the flower having a delightful fragrance like the Old Clove; Mrs. Drummond Aster, yellow ground with scarlet markings; Goldfinch, terra-cotta; Countess of Lathom, a free-flowering variety of rich crimson colour; and Miss Winnie Hey, a pretty yellow ground fancy with pink markings. (Silver-gilt Banksian Medal.)

Mr. H. BURNETT, Guernsey, again exhibited Carnations, the blooms, as usual, being of splendid quality. Besides a selection of the well-known sorts, there were excellent blooms of the novelties White Wonder and White Chief, both of American origin. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, filled a large table with stove and greenhouse Ferns. There were well-grown plants of the rare *Ceterach autumnum*, *Nothochloena Marantae*, *Nephrolepis Neubergeri*, *N. Marshallii* compacta, *Platycodon grande*, *P. Stemmaria*, *P. Cordreii*, *Davallia brasiliensis*, *D. filifoliosa gracillima*, *Adiantum Veitchianum*, *A. flabellatum*, *Blechnum covandense crispum*, *Acrostichum scandens*, and *Phegopteris divergens*. (Silver-gilt Banksian Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, again showed a selection of their beautiful hybrid Begonias, presenting large batches of Winter Cheer, Julius, Mrs. Bedford, and Ensign, all of which we have described on former occasions. Besides these the group was enlivened with fine plants of *Gesnera Aurora*, gold and vermilion, *Bouvardias* in variety, *Callicarpa purpurea* in fruit, and white and red-flowered *Lapagerias*. The exhibit was completed with a selection of Chrysanthemums in pots, which included Golden Age; Swinburne, white, tinged with light rose; Antique, a shade of rose; Elusive, amaranth, and Cinnamon. (Silver-gilt Banksian Medal.)

Rev. H. ECKSTON, Sutton Hall, Etwell, Derby (gr. Mr. A. Shambrook), staged numerous plants of a white-flowered *Cyclamen*, set off by Ferns and other greenery. (Silver Flora Medal.)

A number of charming little plants of *Euphorbia (Poinsettia) pulcherrima* was shown

by W. D. JAMES, Esq., West Dean Park, Chichester (gr. Mr. W. H. Smith). Many of the plants were in small "60" pots, but every specimen had finely developed bracts of the richest colouring. (Silver Banksian Medal.)

A very attractive group of Begonias of the Gloire de Lorraine type was shown by Mr. J. BAUCKHAUS, nurseryman, Twickenham. The majority of the plants were the new variety Glory of Cincinnati, with larger, brighter flowers than the Gloire de Lorraine. All the plants were splendidly grown, and presented pyramids of blossoms. (Silver Flora Medal.)

Mr. G. LANGE, nurseryman, Hampton, showed numerous well-grown plants of the new Begonia Glory of Cincinnati, which received an Award of Merit. (Silver Banksian Medal.)

Messrs. CLIBRANS, Altrincham, showed novelties in winter-flowering Begonias. Besides a very beautiful sort, which received an Award of Merit, there were Mr. T. H. Cook (rose-coloured), Beauty of Hale (rosy-pink), Emily Clibran (salmon-rose), and others.

Messrs. JOHN PEED & SON, West Norwood, showed Begonias of the Gloire de Lorraine type in batches of white and pink varieties, which included Turnford Hall, Roupell Gem, Mrs. Leopold de Rothschild, and the type.

A very large exhibit of Begonia Gloire de Lorraine and its varieties was shown by GURNEY FOWLER, Esq., Globehands, South Woodford (gr. Mr. J. Davis). (Silver Banksian Medal.)

The pretty *Primula malacoides* was shown well by W. B. M. BIRD, Esq., Earthen House, Colchester (gr. Mr. A. Gooding). Some of the inflorescences had as many as six whorls of the pretty pale-lilac-coloured blossoms.

Mr. VINCENT SLADE, Staplegrave Nurseries, Taunton, showed varieties of Zonal-leaved Pelargoniums. Naples (scarlet), Countess of Jersey (pale salmon), Berlin (scarlet), Lady Folkestone (blush pink), Lord Curzon (magenta), and Uranus (rosy cerise) are a selection.

Mr. W. H. PAGE, Tangley Nurseries, Hampton, showed a batch of his new scarlet Pelargonium His Majesty, the blooms being of exceptional size. There were also bunches of Fiscal Reformer (salmon rose) and Winter Cheer (cerise "shot" with scarlet), both novelties of this nurseryman's raising. (Bronze Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, exhibited several pretty Chrysanthemums, including Darenth Jewel, a new single variety with pale rose-pink florets; Cannell's White, the largest of the single varieties and very pretty; King of the Plumes, a yellow variety, the florets being crested like *Endive leaves*; and Mdle. Jeanne Manelle, a large pink Japanese bloom after the type of *Rayonante*, of promise as an exhibition variety. The bunches of Pelargonium flowers provided a bright batch of colouring. (Silver Banksian Medal.)

Messrs. W. WELLS & CO., LTD., Merstham, Surrey, showed a very beautiful exhibit of Chrysanthemums, mostly single and decorative varieties. The colours were exceptionally bright, and there were many beautiful white sorts, especially amongst the singles. A selection includes Ruby Beauty, Miss May Thorne (pink), Mrs. W. Higgs (blush), Polly Duncan (yellow), Crimson Jewel, Merstham Jewel (old rose), Mensa (white), and Peter Barnes (yellow). (Silver Flora Medal.)

Mr. PHILIP LADDS, nurseryman, Swanley, Kent, again showed varieties of Chrysanthemums such as are grown by market flowermen. The blooms were highly decorative, and included such pretty sorts as Cannell's Crimson, Lady Furness, Merstham Jewel, Mensa, Constance, Edith Pagram, and Margaret Gray. Mr. LADDS also showed plants of a salmon-coloured form of the well-known Paul Crampel Pelargonium. (Silver Banksian Medal.)

Messrs. WHITELEGG & PAGE, nurserymen, Chislehurst, Kent, were awarded a Bronze Banksian Medal for an exhibit of Chrysanthemums.

A yellow-flowered Chrysanthemum of the "spidery" or "silk thread" type, named Miss Annie Howard Parrott, was shown by W. PARROTT, Esq., Barton Court, Kintbury, Hungerford (gr. Mr. W. R. Cox).

Messrs. GODFREY & SON, Exmouth, showed their new Anemone-flowered Chrysanthemum Godfrey's Perfection, the blooms being the same as those shown at the last meeting, when an Award of Merit was granted. The flowers were in splendid condition, although cut some 17 days.

Mr. L. R. RUSSELL, nurseryman, Richmond, again showed small decorative shrubs, many furnished with scarlet berries. The varied collection of Aucubas, Ixias, Euonymus, Skimmia, and Eleagnus was wonderfully pretty, nearly all the plants having variegated leafage. (Silver Flora Medal.)

Messrs. W. & J. BROWN, Peterborough, exhibited plants of *Plumbago rosea*.

Mr. G. REUTHE, Keston, Kent, again exhibited hybrid Nerines and Alpines in pots.

A small rockery furnished with Alpines was shown by the Misses HOPKINS, Mere Gardens, Shepperton-on-Thames.

AWARDS.

FIRST-CLASS CERTIFICATE.

Zephyranthes aurea.—This charming yellow-flowered *Zephyranthes* from Peru received an Award of Merit on June 9, 1908 (see *Gardeners' Chronicle*, June 13, 1908, p. 390). On Tuesday last the higher award of a First-class Certificate was given. Sir TREVOR LAWRENCE, Bart. (gr. Mr. Bain), exhibited a pan in which the species bore nine very beautiful golden-yellow flowers shaped like a Vallota.

AWARDS OF MERIT.

Begonia Alphonse Pichard.—This is one of the semi-dwarfed Begonias, a rather tall plant as shown, with numerous double flowers of a rich rosy-carmine shade. It is the best double-flowered variety of this type of Begonia yet exhibited. Shown by Messrs. CHIBRAN, Althorp.

Begonia Gloire de Lorraine.—This variety was raised in America. It resembles *Gloire de Lorraine* in its flowers, except that in this novelty they are much larger than in the case of *Gloire de Lorraine*. The leaves are roundish, and they possess much substance, giving the plant an air of distinctness. Shown by Mr. LANGE, Hampton.

Cypripedium Parlatorei.—A perennial, perpetual-flowering *Cypripedium* of excellent form. Shown by Messrs. BATH, Wisbech.

Cypripedium.—A well-known, single-flowered variety of a shade of mauve. Shown by Mr. P. LADDS, Nurseryman, Swanley.

Japanese variety that is sure to meet with appreciation. Shown by Messrs. WELLS, Merstham.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), Sir Jeremiah Colman, Bart., and Messrs. Jas. O'Brien (hon. secretary), Harry J. Veitch, F. J. Hanbury, R. G. Thwaites, W. Waters Butler, T. Armstrong, C. H. Curtis, W. Cobb, J. Charlesworth, J. Cypher, J. E. Shill, W. H. Hatcher, H. G. Alexander, W. P. Round, A. Dye, W. H. White, J. Wilson Potter, W. Bolton, Gurney Wilson, J. S. Moss, and R. Brooman-White.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), was awarded a Silver Flora Medal for a very fine group of *Cypripediums*, the central plants being of *C. Leeannum* "J. Gurney Fowler," which still holds the record as a magnificent variety, its large, square, white dorsal sepals and general fine form rendering it unlike any other. Another very fine plant in the group was *Odontoglossum Smithii*, all of the plants of which are in Mr. Fowler's collection. Others noted were *Cypripedium Ville de Paris* in fine form, rare varieties of *Cypripedium* insigne, including *Fowlerianum*; *C. Titus superbum*, and *C. triumphans* of very rich colour; *C. Bingleyense*, *C. Fowlerianum*, and other showy hybrids.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. H. Hopkins), showed *Lælio-Cattleya Epicasta* "The Premier," a perfectly-formed flower with bluish-white sepals and petals and ruby-violet lip; *Cattleya St. George*, a pretty flower of very effective colour, like *C. Hardyana Massaiana*; *Brasso-Cattleya Mme. Hye* "Westonbirt variety"; and *Cypripedium Mrs. Francis Wellesley*.

Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O. (gr. Mr. H. G. Alexander), sent the new *Cypripedium* *Nydia* (Niobe "Westonbirt variety" × *Charlesianum*), with very fine rose-coloured dorsal sepal with white margin, and the handsome *C. Draco* (see Awards).

Sir JEREMIAH COLMAN, Bart., V.M.H. (gr. Mr.

Collier), showed *Cypripedium insigne* "Gatton Park variety," an improvement on *Harefield Hall* in size and shape.

F. BOSTOCK, Esq., Springfield, Northampton, showed two very good forms of *Cypripedium* *Aetæus*.

Mrs. NORMAN COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman), showed *Odontoglossum crispum* *Chapmanii*, a finely-blotched variety; *Cypripedium Leeannum* *Gratixae*, and the bright-rose *Calanthe Chapmanii* *rosea*.

E. H. DAVIDSON, Esq., Twyford (gr. Mr. Cooper), showed *Cattleya armainvillieriensis* *alba*.

Messrs. ARMSTRONG & BROWN, Orchidhurst, Tunbridge Wells, were awarded a Silver Flora Medal for a fine group, principally good *Cypripediums* and other hybrids. A new yellow form of *C. nitens* was a very distinct flower; *C. Arthurianum* "Orchidhurst variety," a distinct form

crest. A fine selection of *Cypripediums* was shown, including *C. Niobe* and *C. Thalia* varieties, forms of *C. insigne* and *C. Leeannum*, and at one end a batch of hybrids, the best of which was *Lælio-Cattleya Uranie* of unrecorded parentage, of finer colour than *L.-C. Dominiana*.

Messrs. CHARLESWORTH & Co., in their pretty group for which a Silver Flora Medal was awarded, had the novelty of the meeting in their brilliantly-coloured *Sophro-Cattleya Lotte Müller* (see Awards). *Odontoglossum Goodsonii* was well shown, *Sophro-Lælio-Cattleya Pandora* and other crosses of *Sophronitis grandiflora*; some very fine blue *Vanda cœrulea*, *V. Amesiana*; the brightly-coloured *Epidendrum vitellinum* autumnale and a general collection of good things.

Messrs. JAS. CYPHER & SONS, Cheltenham, secured a Silver Flora Medal for a fine group of *Cypripediums*, in which were many remarkable varieties of *C. insigne* and *C. Leeannum*. Also *C.*



FIG. 175. WINTER-FLOWERING BEGONIA "ALPHONSE PICHARD."

(See B.H.C. Awards.)

with the colouring of *C. Baron Schroder*, another new hybrid, between *C. Bassano* and *C. Fairricanum*, beside it being still darker and finer. Forms of *C. Leeannum*, *C. insigne*, *C. Zeus*, &c., were well shown, and among others noted were a new hybrid between *Cattleya Maronii* and *C. aurea*, a good flower of an Indian-yellow tint, the lip veined with rose; a distinct cross between *Cattleya Trianae* and *C. Aclandiae*, of good shape and substance; another between *C. guttata* and *C. aurea*, which promises well; a blood-red *Odontodia* between *C. Nozella* and *O. Rolfæe*; various other good unnamed hybrids, and a finely-spotted seedling *Odontoglossum crispum*.

Messrs. JAS. VEITCH & SONS, Chelsea, were awarded a Silver Flora Medal for a fine group, in the centre of which was the handsome *Odontoglossum Aurora* (*Rosii rubescens* × *Lambeauianum*), a grand flower resembling *O. Smithii* with lilac-coloured sepals and petals blotched with claret, and a large rose-purple lip with yellow

Amy Moore, *C. Mme. Jules Hye*, *C. Milo* "Westonbirt variety," *C. Titus superbum*, *C. Fascinator*, *C. Fulshawense*, *C. Priam magnificum*, and *C. Thalia* varieties. The plants were finely grown and well staged with hybrid *Cattleyas*, *Dendrobium Phalaenopsis*, and others.

Messrs. J. & A. A. McBEAN, Cooksbridge, were awarded a Silver Flora Medal for a very bright and well-arranged group of hybrid *Cattleyas*, *Lælio-Cattleyas*, &c. Specially fine were two forms of *Cattleya Luegei*, some richly-coloured *C. Fabia* and *Sophro-Lælio-Cattleya Marathon* var. *Helen*, a charming coppered flower with ruby-crimson lip veined with gold. A selection of *Cypripediums* and *Odontoglossums* were also included.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Banksian Medal for an effective group, at the back of which were some well-flowered specimens of a very large type of

Oncidium varicosum. With them were some dark forms of *Cattleya labiata* and one good white-petalled variety; several *C. Hardyana*, *Sophro-Cattleya Saxa*, *Cynoches chlorochilon*, *Lycaste* Mrs. Rogerson and other *Lycastes*, *Eria stellata*, *Cymbidium Traceyanum*, good *Vanda cœrulea*, *Dendrobium Phalaenopsis*, *Houlletia Bruckelei*, *hustana*, and a good selection of *Cypripediums*, &c.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for a fine group rich in hybrid *Cypripediums*, the best of the many forms of *C. Leeanum* being the variety *Gratrixia* with its broad, white dorsal sepal. *C. Durbar* was a very good dark novelty with a resemblance to a fine *C. nitens*, *C. Troilus* "Sander's variety," of very delicate colour, *C. Rossetii* (greenish-yellow and white), *C. Niobe superbum*, *C. Fulshawense* and others well flowered. Colour was given by some handsome *Cattleyas* and *Lælio-Cattleyas*; *C. Dowiana Rosita*, *C. Fabia Vigeriana*, *C. Cooksonia amabilis* and others being noted.

Messrs. W. BAYLOR HARTLAND & SONS, Cork, were awarded a Silver Banksian Medal for a good display of *Cypripedium* *insigne* *Harefield Hall*, *C. i. Sanderae* and other *Cypripediums*, together with *Lælio-Cattleyas* and two good *Odontoglossum crispum*.

Messrs. MANSELL & HATCHER, Rawdon, Yorks., were awarded a Bronze Banksian Medal for an effective group, in which *Cypripedium* *Leeanum giganteum* "G. S. Ball's variety" had fine flowers, and others were equally good. *C. Actæus* varieties, *C. Thalia* Mrs. Francis Wellesley, and others were staged, and also noted were a spike of a very fine pure-white *Dendrobium Phalaenopsis* and another of the true *Calanthe vestita rubro-oculata gigantea*.

Mr. E. V. Low, Vale Bridge, Haywards Heath, secured a Bronze Banksian Medal for a group in which a specimen of *Cypripedium* *Mines Youngii* had fine flowers. *C. Leeanum Corona*, *C. L. Clinkberryannum* and other forms of *C. Leeanum*, *C. triumphans*, *C. Titus*, *C. Gaston Bultel*, *C. Baron Schroder* (nine flowers), and other showy things were well displayed.

Miss WALTERS ANSON, The Studio, Broadway, Streatham, had a very fine display of beautifully-executed coloured drawings of Orchids.

Messrs. HASSALL & Co., Southgate, staged a small group, in which were noted two pretty and dissimilar forms of *Cattleya Aliciae*, the rose-coloured *C. St. Gilles*, *Lælio-Cattleya Rubens* and other hybrids.

AWARDS.

FIRST-CLASS CERTIFICATE.

Sophro-Cattleya Lobb Miller (C. *Parkeri* S. S. C. *Nydia*), from Messrs. CHARLESWORTH & Co., Haywards Heath.—One of the best and brightest-coloured hybrids of medium growth. The flowers are formed after the manner of *Cattleya labiata*, though smaller in size. The sepals and petals are broad and of varying tints of bright rose and ruby red, the midribs being silver-white at the base. Lip well expanded and crimped at the margin ruby-crimson with a velvety surface and gold veining at the base. One of the most attractive novelties shown this year.

AWARDS OF MERIT.

Cypripedium Draco "Westonbury variety" (insigne *Harefield Hall*—*Eugenia*), from Lieut. COL. GEORGE L. HOLFORD, C.K.V.O., Westonbirt (gr. Mr. H. G. Alexander).—A grand flower, broad in all its parts, the main characteristics being of *C. insigne* *Harefield Hall*, but with the dark colouring, fine substance and round form as in *C. Earl of Tankerville*. The broad dorsal sepal is white above and greenish-yellow below spotted with dark purple, which changes to rose in the white zone. Petals and lip yellow tinged and veined with purple-brown.

Trichopetalum Goldiei (nove. sp. *fragrans*), from Messrs. CHARLESWORTH & Co.—A pretty and fragrant hybrid between two widely separated sections of the genus. The flowers in shape partake most of *T. (Plumina)* *fragrans*. Sepals and petals silver-white spotted in the middle with rose. Lip white spotted with rose.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); and Messrs. J. Cheal, W. Bates, F. Perkins, A. Dean, E. Beckett, A. R. Allan, W. Pope, G. Woodward, J. Willard, G. Reynolds, W. Poupard, and W. Humphreys.

E. R. JAMES, Esq., Wroxton, Banbury, submitted fruits of a pretty dessert Apple somewhat resembling Cox's Orange Pippin. The exhibitor was asked to send specimens in February.

The Earl of STANHOPE, Cheneveng, Sevenoaks (gr. Mr. J. C. Sutton), showed a collection of Apples. The fruits were not of large size, but they were generally well finished. The best of the cooking varieties were Bramley's Seedling, Belle de Fontoise, Newton Wonder, Bismarck, Waltham Abbey Seedling, Belle du Bois, Lane's Prince Albert, Hambling's Seedling, Lord Derby, and Small's Admirable. Of dessert sorts the best were Blenheim Pippin, King of Tompkins County, Cox's Orange Pippin, May Queen, American Mother, and Allington Pippin. (Silver-gilt Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, staged a remarkably fine collection of Apples and Pears, embracing 96 dishes. The fruits generally were very highly coloured. Of cooking varieties King Edward VII., Alfriston, Bismarck, Bedfordshire Foundling, Reimette de Canada, Lord Derby, Peasgood's Nonesuch, Gloria Mundi, Twenty-Ounce Pippin, Striped Beefing, and Tower of Glamis were exceptionally good. The best dessert sorts were The Rival, Maltster, King of the Pippins, Fearn's Pippin, Cornish Aromatic, Autumn Pearmain, Allington Pippin, Barnack Beauty, Cox's Orange Pippin, Charles Ross, Mother Apple, Sturmer Pippin, Adams's Pearmain, Vicar of Beighton and Ribston Pippin. Pears included Catillac, Verulam, and Uvedale's St. Germain. (Silver-gilt Banksian Medal.)

Mrs. MILLAR, Molyen, Marlow, and Miss HILDA SEWELL, South Kensington, both exhibited jellies, jams, marmalades, chutney, and other preserves.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 29.—The annual dinner of this Society was held at the Holborn Restaurant on this date. The President of the Society, Sir Albert Kaye Rolitt, LL.D., D.C.L., occupied the Chair, and there were 100 members and friends present.

After the presentation of cups and medals won at the Society's shows, the President proposed the toast of "The National Chrysanthemum Society." He referred to the work of the Society, which, he stated, had been established more than 50 years. He said that the last Show exceeded all previous exhibitions so far as a spectacular display was concerned. At recent shows marked prominence had been given to the development of single-flowered varieties and dwarf plants of a purely decorative character.

Mr. T. Bevan, Chairman of the Executive Committee, replied.

Other toasts were "The Donors of the Special Prizes," proposed by Mr. W. Howe and responded to by Mr. J. R. Jackson; "The Exhibitors and Affiliated Societies," proposed by Mr. E. F. Hawes; "The Ladies and Visitors," by Mr. J. H. Witty; "The Press," by Mr. J. W. Moorman; and "The Chairman," by Mr. J. M. Kercher.

Sir Albert Rolitt was presented with a printed copy of the resolution passed by the Executive Committee on November 20, "that the Executive Committee on behalf of the members desires to place on record its sincere appreciation of the very valuable services rendered to the Society by Sir Albert Kaye Rolitt, LL.D., D.C.L., since his appointment as President in February, 1908. The Committee particularly appreciate the President's special personal efforts towards increasing the membership of the Society, being certain that, in addition to the direct results of the President's action, a distinct advantage has accrued to the Society from the publication given to the Society's name and work."

CHRYSANTHEMUM CONFERENCE.

DECEMBER 4.—There was an excellent attendance at the conference held by the Society at Carr's Restaurant on the 4th inst., when, owing to the indisposition of the President, the chair was occupied by Mr. Thos. Bevan.

The first paper was by Mr. F. W. Ladds, his subject being "The Culture of Disbudded and Spray Blooms." We print the following extracts:—

Great care should be exercised in the selection of plants for stock. Much the best plan is to

select cuttings from plants which have produced the best blooms, marking them for the purpose when in flower.

It is desirable to select the best stools; shake most of the soil from the roots and place them on a hard-bottomed border, just covering them with some fine loam. Great care should be taken in affording water, as an over supply will lead to failure. If the stools are left in the pots, a top-dressing will be advisable, as the top soil will be sour from last autumn's manuring.

It is difficult to name the best date for taking cuttings, but, generally speaking, the later the variety the earlier should the cuttings be inserted. For instance, Pamoukoe, Framfield Pink (with others of its family), and those of the "Thompson" type are all the better for being rooted early.

To strike a large number of cuttings, I have found the following method to be the cheapest and most successful:—In an ordinary 12-feet greenhouse with a centre path, pat the soil of the border rather hard. Place a piece of 1 inch by 3 inch batten on edge at the back and front of the border, and fix it in position by 9-inch stumps driven into the ground on either side. In this bed place a 2-inch layer of good loam, containing no manure, but to which has been added about two shovelfuls of coarse sand to each barrow-load of soil. Pat down firmly and dibble the cuttings in, inserting about 100 to the square foot.

The length of the cuttings should be about 3 inches. When taking the cuttings, be sure to leave an "eye" on the old stool to break again later on, in case of failure with the first batch. Make the cuttings firm in the ground, inserting them about 1 inch deep, taking care that the base is in contact with the soil. The cuttings should be taken off, made, and inserted within, say, two hours, so that no sign of flagging is visible. Afford only sufficient water to keep the soil moist, but sprinklings overhead will help to prevent the foliage from flagging. Tissue paper or newspaper may be used for shading if necessary.

If the potting is done as soon as the cuttings have made roots about 1 inch long, they may easily be taken from the beds with hardly any damage to the roots; thus they will receive only the slightest check. The size of the pots will largely depend on how the plants are to be treated later on. With some varieties, it is as well to pot into 3-inch pots (60's), shifting into 48's, and finally into 24's or 16's. Other varieties may be potted directly into 48's, placing two, three, or four plants in a single pot. In the first system, the plants should be potted into 48's as soon as they are fairly well rooted in 60's. For the first potting, the plants are best accommodated in frames, as the lights can be removed to give them the benefit of sunshine, air, and rain. If the plants are kept in an ordinary greenhouse, they are apt to grow weak and soft. The best time for the first potting into 24's and 16's is from May 7 onwards, every endeavour being made to get all potting finished by the end of June. It is preferable to use 24's, as in the case of 16's the pot is so large that, should the late autumn be wet and cold, the soil does not dry quickly, and is liable to become sour. There are exceptions to this: for instance, in the case of four plants of the variety Tuxedo use the larger size.

For the first potting, good loam is essential, mixing one part of decayed horse manure to 15 parts of the loam. For the second and final potting, that is, from the 48's to 24's or 16's (it is impossible to devote more time and money to potting when growing in a wholesale way for market), use a good loam, not too heavy, with the following additions:—In November turn the loam, and, in layers, add 8 per cent. of decayed horse manure, and, in alternate layers, add 1 per cent. bonfireal, ground bones being the best. When turning the soil again in May, add 1 per cent. of soot, and $\frac{1}{2}$ per cent. to 1 per cent. of Peruvian guano. By preparing the soil in this way, very little artificial manure will be necessary during the summer months. The soot seems beneficial in several ways, chiefly by keeping away worms, slugs, and other pests. The manure should be well drained and a quantity of soil placed in the bottom and rammed down. The ball of the plant should then be placed in the middle of the pot, more soil added, and rammed down regularly, so that the soil is compact throughout.

As regards stopping the shoots, it will be sufficient, perhaps, to state the usual methods: (1) Stop once in late May when in the flowering pot, and allow as many breaks to grow as will furnish a crop. Then take the next bud. (2) Stop once in the 48 pot, and once in the flowering pot, and take next bud. (3) Stop once in the 48 pot, and allow the growth to break naturally in the flowering pot. Remove surplus shoots, and take the next bud. (4) Stop in 48's, natural break in the flowering pot, then leave only one break on a stem. Some varieties are better taken this way for disbudded blooms than stopping once and taking next bud. The grower must ascertain by experiment, first, which method, and, secondly, which date is best for the particular variety.

In the stopping of a large batch of one variety at the same date, the blooms will probably all have to be cut for market in one week; but, by dividing the batch into three parts, and stopping on three different days, with a range of a fortnight, the crop may be made to extend over three weeks instead of one.

The disbudding should be done as soon as the buds are large enough to handle. In some instances it is advisable to leave the top shoot next to the bud until the latter shows signs of swelling. This applies to buds other than terminal buds.

Very little food is necessary during the first summer months if the potting soil is good. In fact, it can almost be made a rule not to feed until the disbudding is finished. Then feed a little at a time and often, up to within 14 days from cutting the bloom. If the plants require a slight stimulant before the bud is formed, a weak solution of Peruvian guano, or a little soot-water with guano, may be applied by the water-can. In top-dressing with concentrated manures mix the manure with about twice its quantity of fine soil. There are several special manures for Chrysanthemums. Personally, I favour Peruvian guano and Bull's Food for Plants.

A weak solution of Tobacco water sprayed on the plants at frequent intervals during the summer will keep down insect pests. The cheapest method of making Tobacco water is to buy cheap Tobacco paper or cloth, or if possible the rope that is taken from the bales of imported Tobacco. Boil these in water and dilute the liquid to the strength thought necessary. Tobacco-water made in this manner is a certain preventive of mealybug. Sulphur is a good remedy for mildew, also liver of sulphur. Take a piece of the latter about as large as a Cob Nut and dissolve it in one gallon of water. Spray the leaves all over, taking care to wet the under sides as well as the top.

In the case of lifted Chrysanthemums, the cuttings are struck in February and March, and usually insert 200 in an egg-case 4 inches deep. When rooted, the plants are put in a cold house or frame, and stopping takes place when they are 6 inches high. In April they are put outside, a canvas covering being handy for use in frosty weather. The ground is prepared for planting and the rows set out 21 inches apart one way and 18 inches the other. The planting takes place on the first showery day in May, in just the same manner that the market-gardener plants his Cabbages. Weeding the fields is necessary during the summer. The plants should be stopped about the first week in July, or when they have made sufficient growth. The lifting in autumn must be done before frost occurs. At Swanley we generally start lifting at about October 1 and finish by October 18.

Framfield Pink is undoubtedly the finest Chrysanthemum from the market-growers' point of view. The only exceptions that can be taken to it are that in some districts, being a late variety, it will not flower, also it does not always lift well. Other than these faults, it is an ideal Chrysanthemum. It has good foliage and good stems, which are stiff enough to hold its flowers erect, and yet not so hard as to prevent the blooms from drawing water. The neck between the top leaf and the flower is not unsightly through being too long, nor is it too short so that the leaves are intermingled with the florets of the bloom. The petals or florets are of good form and substance. They are stiff or springy enough to maintain their proper position in the flower, even though the side of the flower may have become flattened after a long journey by road or rail by reason of close packing in a box. Again, it seldom shatters, even if carelessly handled, and will withstand a great deal of rough usage. It is

good alike grown for sprays or disbudded blooms.

So much for Framfield Pink. Now, if a grower wishes to assure himself that a new variety, or a variety that he has not already grown, is of any use to him as a commercial Chrysanthemum, let him compare that variety with Framfield Pink on the several points that I have enumerated. If it passes the examination and is equal to, better than, or even nearly as good as Framfield Pink, that grower can congratulate himself on having found a good Chrysanthemum. There is one little detail that I have not mentioned up to the present, and that is "colour." This is a consideration in a market Chrysanthemum, and I do not feel capable of laying down any hard-and-fast rule regarding "colour." The foremost thing to bear in mind is that it is best to grow those shades of colour that are most fashionable.

THE DISCUSSION.

Messrs. W. Wells, Norman Davis, Wood, Crane, Stevenson, and Godfrey took part in the discussion which followed the reading of the paper. The general opinion was that potash was of considerable value in increasing the resistance of the plants against fungous diseases, and also that plants grown in the neighbourhood of large towns were seldom, if ever, attacked by Chrysanthemum rust.

MR. CRAGG'S PAPER.

Mr. P. A. Cragg's paper dealt with "Soil Preparation and the Use of Some Chemical Foods." Mr. Cragg stated that in his firm's system of soil preparation they first secured an analysis from a competent horticultural chemist of the soil with which they had to deal. The whole soil to be dealt with was first mixed as a bulk, and the addition of the necessary fertilising agents was made just previous to the soil being required for potting, a sufficient amount of each ingredient being used to bring the soil up to an even balance of fertility. The materials used were basic slag, ground grey lime, bonemeal, ground hoof, phosphates in various degrees of solubility, soot, and old Mushroom manure. They had proved that the addition of potash in the soil resulted in less mildew in Tomatoes, supporting the statement of Mr. A. D. Hall, that potash increased the plants' powers of resistance to fungous diseases. To 100 tons of soil was added $\frac{1}{2}$ ton of lime 77 per cent. purity, $\frac{1}{2}$ ton basic slag, $\frac{1}{2}$ ton of ground bones, 12 cwt. of ground hoof, and 10 bags of soot. The lime was applied in the autumn to the pasture before the turf was dug for stacking.

Messrs. Cragg's method of dealing with this matter of soil is a novel one, and commenced with the enrichment of the pasture itself. The soil which they possess in the nursery is a light brick earth, and, taking note of the fact that nitrogen can be obtained from the atmosphere by leguminous plants this portion of land was sown with deep-rooting Grasses and Clovers, the soil having been previously prepared for their reception by a good dressing of lime, basic slag, and potash.

If the foliage of the Chrysanthemum developed a pale-green colour, a watering with sulphate of iron in the proportion of $\frac{1}{2}$ ounce to 1 gallon of water soon restored the plants to their natural healthy appearance.

Messrs. Davis, Godber, and Godfrey contributed remarks on the subject.

ULSTER HORTICULTURAL.

NOVEMBER 14, 15.—The annual show of this society took place in St. George's Market, Belfast, on these dates.

The 1st prize in the class for a group of Chrysanthemums decorated with foliage plants was won by CHARLES DUFFIN, Esq., Danesfort (gr. Mr. J. McCormick); 2nd, Mrs. FORSTER GREEN, Derryvolgie House (gr. Mr. A. Smiley).

For a group of single Chrysanthemums and plants Mrs. FORSTER GREEN was placed 1st, and J. ROGERS, Esq., Edna-a-Green (gr. Mr. McIlveen), 2nd. Mrs. FORSTER GREEN was again successful in the class for 12 plants suitable for table decoration. Messrs. HUGH DICKSON, Royal Nurseries, were awarded the 1st prize for a group of stove and greenhouse or forced plants, arranged for effect; also in the class for a group of conifers and hardy ornamental plants, Messrs. F. E. SMITH & Co. taking the 2nd prize. FRANK WORKMAN, Esq., The Mead (gr. Mr. T. Culbert),

excelled in the class for a group of stove and greenhouse or forced plants, arranged for effect, and also in that for best six Ferns, dissimilar. The best two Palms or Cycads were shown by Mr. DUFFIN. The best pink Begonias of the Gloire de Lorraine type by Mr. G. J. PRESTON, Lord O'NEILL being successful in the similar class for white varieties.

In the classes for six specimens of Primula obconica and six zonal-leaved Pelargoniums Mrs. MCKENNEY and H. BROWN, Esq., Helen's Bay (gr. Mr. J. Taylor), were awarded the 1st prizes respectively.

CUT BLOOMS.—For 15 vases of Japanese blooms, three blooms of each variety, J. JAMESON, Esq., secured the 1st award; 2nd, Countess of CALEDON (gr. Mr. J. Harding). Mr. JAMESON was also successful in the classes for (1) one vase containing five blooms of any variety, pink; (2) one vase of a yellow variety; (3) one vase any bronze variety; and (4) 48 Japanese blooms, shown in boxes, in 36 varieties. The Countess of CALEDON was awarded the 1st prize for 10 vases of Japanese blooms, three blooms of each variety; 2nd, Mr. DUFFIN. The Countess of CALEDON was also successful in the class for one vase of a white variety. For 20 vases of single Chrysanthemums, distinct varieties, EDWIN HUGHES, Esq., Craigavad (gr. Mr. T. Magill), secured the 1st award, Colonel SHARMAN-CRAWFORD, Crawfordsburn (gr. Mr. J. Whytock), being 2nd. For 10 vases of single Chrysanthemums, distinct varieties, HERBERT BROWN, Esq., was placed in the 1st position, and this competitor also excelled in the classes for one vase of yellow single Chrysanthemums. Mr. EDWIN HUGHES, winner in the similar class for (1) a white variety, (2) a pink variety, (3) a bronze variety, and (4) one vase of single Chrysanthemums arranged for effect. In the class for four vases of winter-flowering Carnations, distinct varieties, H. E. RICHARDSON, secured the 1st position, J. ACHESON, Esq., Dunavon, Portadown (gr. Mr. W. J. Cox), being awarded the 2nd prize.

FRUIT CLASSES.—For a table of dessert fruit, 12 distinct varieties, Lord O'NEILL secured the 1st prize. He also won the 1st prizes in the classes for two bunches of Muscat of Alexandria, Grapes, two bunches of Lady Downes Grapes, two bunches of Gros Colman Grapes, and for Blenheim Pippin Apples. FRANK WORKMAN, Esq., Strandtown (gr. Mr. T. Culbert), excelled in the classes for six bunches of Grapes; 2nd, GEORGE J. PRESTON, Esq., Dunmore (gr. Mr. J. McBride). Mr. WORKMAN was again successful for two bunches of Black Grapes not scheduled. G. J. PRESTON, Esq., secured the 1st prize in the similar class for two bunches of a white variety. Colonel SHARMAN-CRAWFORD excelled in the class for two bunches of Black Alicante. For a collection of 24 dishes of Apples, 8 dessert and 16 culinary varieties, J. JAMESON, Esq., Portmarnock, was successful, whilst for 12 dishes of Apples A. G. BOWERS, Esq., Co. Kilkenny, secured the 1st award.

In the section devoted to vegetables Lord O'NEILL secured the 1st award for a collection of 12 kinds; 2nd, Mr. H. BROWN; and for six kinds Mr. J. STEWART was successful. Mr. BROWN excelled in the class for six Onions, and he was awarded the 1st prize in the class for six Leeks.

DARLINGTON HORTICULTURAL.

NOVEMBER 22.—The Chrysanthemum show of the above society was held in the Drill Hall, Darlington, on this date. The quality of the exhibits reached a high standard of excellence, fruit being exceptionally fine.

In the open class for 24 Japanese Chrysanthemums, the 1st prize, which included a Silver Challenge Cup, being by the Member for the Borough, H. L. Pike Pease, Esq., was awarded to J. BRENNAND, Esq., Baldersby Park, Thirsk (gr. Mr. J. E. Hathaway). This is the third time Mr. BRENNAND has won the cup in four years, and it now becomes his own property. 2nd, W. C. GRAY, Esq., Thorpe Perrow, Bedale (gr. Mr. W. Pattison), and 3rd, the Marquis of Ripon, Studley Royal (gr. Mr. G. E. Thomas).

Mr. BRENNAND was also placed in the premier position for 24 Incurred varieties and for 12 Incurred varieties.

Sir JONATHAN BACKHOUSE, Bart., Uplands, Darlington (gr. Mr. J. Lester), excelled in the class for 12 Japanese varieties; 2nd, Mr. HORSNELL, Griston, York.

In the class for six vases with three blooms each, Mr. J. LESTER was awarded the 1st prize. The best six vases of single varieties was shown by A. C. STAMER, Esq., The Knoll, Darlington.

Mr. G. E. THOMAS showed the best basket of Chrysanthemums; Mr. H. H. HILLIER the best centre piece decoration of Chrysanthemum blooms arranged as for a dinner table; whilst Miss L. BOYD excelled for a hand bouquet.

A fine exhibit of Carnations was staged from the gardens of the Rt. Hon. J. A. PEASE, M.P., Headlam Hall, Gainford (gr. Mr. T. McKeown), and was awarded the 1st prize in the class for these flowers.

In the fruit section Lady COWELL, Clifton Castle, Bedale (gr. Mr. J. E. Gardiner), excelled in the class for two bunches of black Grapes; Mr. BRENNAND, Baldersby Park, winning the 2nd prize. The same gentlemen were similarly placed for two bunches of white Grapes.

For a collection of vegetables, Mr. T. SEYMOUR, Yarm, excelled, and Mr. G. DANDY, Yarm, followed.

Non-competitive exhibits were staged by Messrs. KENT & BRYDON, The Nurseries, Darlington, and Messrs. MACK & MILN, Catterick, Scorton, and Darlington.

ABERDEEN CHRYSANTHEMUM.

NOVEMBER 24, 25.—This annual exhibition and floral fete was held under the auspices of the Aberdeen Chrysanthemum Society in the Music Hall Buildings, Aberdeen, on these dates. The effects of the remarkably fine summer were seen in practically all the sections of the show, but especially in the fruit classes.

In the class for a group of Chrysanthemums and other plants, arranged in a semi-circular form on a space 10 feet by 5 feet, A. R. GRAY, Esq., Garthdee House, Aberdeenshire (gr. Mr. R. Begg), was awarded the Silver Cup, his group comprising well-grown blooms, while the decorative varieties were much admired. A. SMITH, Esq., Craigielea, Aberdeen (gr. Mr. J. Mathieson), was placed 2nd. This exhibit was exceedingly good.

In the classes devoted to Chrysanthemums, A. R. GRAY, Esq., was awarded the Silver Cup for the best group, and nine 1st and 2nd prizes. Mrs. COOK, Ashley House, Aberdeen (gr. Mr. Murray), also showed some fine exhibits.

Lord Provost MAITLAND, Rubislaw Den House, Aberdeen (gr. Mr. A. Duncan), and JAMES JAMIESON, Esq., Tillycarthie, Udney, Aberdeenshire, were the most successful exhibitors of Ferns. Chinese Primulas (single varieties) were shown well by A. R. GRAY, Esq., Garthdee, whilst H. BAIRD, Esq., Durris House, Kincardineshire (gr. Mr. Andrew Reid), excelled with Orchids. Lord Provost MAITLAND was awarded the premier prize for winter-flowering Begonias.

There was a charming display in the section for cut flowers, J. JENKINS Esq., Clifton Road, Aberdeen, was successful in the class for 18 blooms, having choice blooms. Mrs. REDMOND McGRATH, Leatham Grange, Arbroath (gr. Mr. J. W. Robertson), showed well in the class for 12 blooms, which included choice examples of Mrs. H. Barnes, Frances Jolliffe, Bessie Godfrey, Reginald Vallis, Mrs. R. Davis, F. S. Vallis, Lady Talbot, Victoria and Albert, and J. H. Silsbury.

The class for 18 varieties of decorative Chrysanthemums in vases resulted in a keen competition; Mrs. DUNBAR-DUNBAR, Sea Park, Forres (gr. Mr. John Gregory), was awarded the 1st prize. In the class for nine vases of decorative Chrysanthemums, Mr. A. GRIGOR, Duff House Gardens, Banffshire, was successful.

For 12 vases of single Chrysanthemums, Mrs. McGRATH, Leatham Grange, excelled with a meritorious display. For six vases of single varieties, the leading honours were secured by Mr. JOHN ELDER, Norwood House Gardens, Aberdeenshire.

Mr. A. SMITH, Craigielea, was successful with Heliosores, being followed closely by Mr. WILLIAM MILNE, Corsindae House, Aberdeenshire. Mr. BAIRD, of Durris, was placed 1st for six stove or greenhouse plants (Orchids excluded), with finely-grown specimens of *Clerodendron Balfourii*, *Lassandra macrantha*, *Anthurium Andreanum* album, and *Eucharis grandiflora*.

In the amateur section the leading exhibitors were Mr. JOHN DAVIDSON, Hardgate, Aberdeen; Mr. JOHN L. MILNE, Hardgate; Mr. JAMES COUTTS, Sunnybank Place, Aberdeen; and Mr.

ALEXANDER CUMMING, 83, Cairnfield Place, Aberdeen. The last-named gentleman won for the third year in succession the 1st prize for six vases of decorative Chrysanthemums.

In the fruit section the exhibits of Apples were the most notable feature. A splendid collection of Apples was shown by Lord LOVAT, Beaufort Castle (gr. Mr. W. B. Reid). Mr. CHARLES A. CUMMING, Pitgaveny House, Elgin, was awarded the 1st prize for kitchen Apples, whilst Lord LOVAT was 1st for dessert Apples. Pears were especially fine, the prize-winners being Mrs. McGRATH, Leatham Grange; Mr. CUMMING, Pitgaveny House, Elgin; Mr. BAIRD, Durris, and Mrs. DUNBAR-DUNBAR, of Seapark, Forres. Mrs. McGRATH was successful in the class for Grapes; 2nd, Mr. JOHN ELDER, Norwood.

In the vegetable section the best collection was shown by Mr. TAIT, Broomhead, Inverurie.

PERPETUAL-FLOWERING CARNATION.

DECEMBER 5, 6.—The 11th show of this Society was held at the Royal Botanic Gardens, Regent's Park, on Tuesday and Wednesday last, and was one of the best exhibitions held under these auspices.

OPEN CLASSES.

In the class for a collection of cut blooms staged on a table, Mr. W. E. WALLACE, of Eaton Bray, secured the 1st prize, his varieties including May Day, White Perfection, Carola, Enchantress, Gloriosa, Scarlet Glow, Delight and White Wonder; 2nd, Messrs. ALLWOOD BROS., Wivelsfield Nurseries; this firm staged their fine novelty Wivelsfield Wonder (see fig. 171), which has already received the R.H.S. Award of Merit; also a new variety named Fair-



FIG. 171.—CARNATION "WIVELSFIELD WONDER": WHITE GROUND, FLAKED WITH ROSE.
Introduced by Messrs. Allwood Bros. at the Perpetual-flowering Carnation Society's Exhibition.

This exhibit comprised Potatoes, Ailsa Craig Onions, Veitch's Self-Protecting Broccoli, Solidity Brussels Sprouts, St. Valery Carrots, and Clark's Empress Celery. 2nd, the Misses MACLENNAN, Springfield House, Aberdeen (gr. Mr. William Spring).

Non-competitive displays proved an attractive feature; the most important exhibit being shown by the Secretary, Mr. SINCLAIR. His exhibit included Nerines, Poinsettias, Gerberas, Chrysanthemums, Begonia Gloire de Lorraine, Ferns, Palms, and a number of richly-berried plants. Messrs. THOMAS RIVERS & SONS, Sawbridgeworth, Hertfordshire, and Messrs. GEORGE BRYNARD & CO., Maidstone, showed remarkably fine displays of Apples; the ICHTHEMIC GUANO CO., Ipswich, had a display of their specialities.

mount; 3rd, Messrs. YOUNG & CO., Hatherley, Cheltenham.

Mr. BERTIE E. BELL, Guernsey, won the Challenge Cup offered for three vases of British novelties raised during the past two years with Coronation, Judith and Constance. The American Challenge Cup, offered for American-raised novelties, was won by Mr. W. E. WALLACE, Eaton Bray, with excellent blooms of Gloriosa, May Day and Scarlet Glow. Messrs. B. E. BELL and W. WELLS & CO., Merstham, were placed 2nd and 3rd respectively in this class.

Mr. WALLACE also won the "Covent Garden" Cup offered for market varieties, showing Dorothy Gordon and White Wonder; 2nd, Mrs. D. M. COLLINS.

Mr. WALLACE was also successful in the class for 25 blooms of the variety Enchantress,

Fruit: Average Wholesale Prices (continued).

	s. d. s.		s. d. s.
Apples, per barrel:		Nut-Brazils, new	75 0 80 0
— Canadian	16 6 —	— per cwt.	
— American	16 6-30 0	— Spanish, per sack	16 6 —
— Louisiana, bunch:		— Valencia, per sack	32 0 34 0
— Doables	9 10 10	— Chestnuts, per bag	8 6-16 0
— No. 1	7 6 8 6	— Chestnuts (100)	14 0-18 0
— Lima	10 10 11	— English Cobs	0 6 0 6 1/2
— Quaint	10 10 16 0	— per lb.	
— Loose, per doz.	6 6 1 4	— (Naples) kind dried, cwt.	51 0 —
— Bulk, per doz.	5 6 6 6	— Cases	
— Jamaica, per bunch	3 6 6 0	— French Grenobles, per bag	6 6 7 0
— Jamaica, per box (or doz.)	3 6 6 0	— Boers, per bag	6 0 7 0
Craneberries, per case (30 cts.)	10 11 10	— Oranges, Jamaica	11 0-13 0
— Cape Cod, per case (30 cts.)	9 6 —	— Denia, case	15 0-24 0
Dates (Tunis) doz.	4 6-5 6	— Mandarin, per box	1 0-6 0
Grape Fruit, case:		— Pearls (California), per case	10 6 16 6
— 90's	12 0-16 0	— Fasto Moreau	10 0-16 6
— 65's	12 0-16 0	— Fasto Moreau	10 0-16 6
— 54's	12 0-16 0	— Winter Nels	10 6-15 0
— 48's	12 0-16 0	— Doynette du	
— 42's	12 0-16 0	— Conice, per case	10 0-17 6
— 36's	12 0-16 0	— White Conice	16 0 —
— 30's	12 0-16 0	— (French), per case	7 6-8 6
— 24's	12 0-16 0	— Stewing, per cwt.	11 6-12 6
— 18's	12 0-16 0	— (French) Catil-	
— 12's	12 0-16 0	— (French) Catil-	
— 6's	12 0-16 0	— (French) Catil-	
— 3's	12 0-16 0	— (French) Catil-	
— 1's	12 0-16 0	— (French) Catil-	
— 1/2's	12 0-16 0	— (French) Catil-	
— 1/4's	12 0-16 0	— (French) Catil-	
— 1/8's	12 0-16 0	— (French) Catil-	
— 1/16's	12 0-16 0	— (French) Catil-	
— 1/32's	12 0-16 0	— (French) Catil-	
— 1/64's	12 0-16 0	— (French) Catil-	
— 1/128's	12 0-16 0	— (French) Catil-	
— 1/256's	12 0-16 0	— (French) Catil-	
— 1/512's	12 0-16 0	— (French) Catil-	
— 1/1024's	12 0-16 0	— (French) Catil-	
— 1/2048's	12 0-16 0	— (French) Catil-	
— 1/4096's	12 0-16 0	— (French) Catil-	
— 1/8192's	12 0-16 0	— (French) Catil-	
— 1/16384's	12 0-16 0	— (French) Catil-	
— 1/32768's	12 0-16 0	— (French) Catil-	
— 1/65536's	12 0-16 0	— (French) Catil-	
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— 1/16777216's	12 0-16 0	— (French) Catil-	
— 1/33554432's	12 0-16 0	— (French) Catil-	
— 1/67108864's	12 0-16 0	— (French) Catil-	
— 1/134217728's	12 0-16 0	— (French) Catil-	
— 1/268435456's	12 0-16 0	— (French) Catil-	
— 1/536870912's	12 0-16 0	— (French) Catil-	
— 1/1073741824's	12 0-16 0	— (French) Catil-	
— 1/2147483648's	12 0-16 0	— (French) Catil-	
— 1/4294967296's	12 0-16 0	— (French) Catil-	
— 1/8589934592's	12 0-16 0	— (French) Catil-	
— 1/17179869184's	12 0-16 0	— (French) Catil-	
— 1/34359738368's	12 0-16 0	— (French) Catil-	
— 1/68719476736's	12 0-16 0	— (French) Catil-	
— 1/137438953472's	12 0-16 0	— (French) Catil-	
— 1/274877906944's	12 0-16 0	— (French) Catil-	
— 1/549755813888's	12 0-16 0	— (French) Catil-	
— 1/1099511627776's	12 0-16 0	— (French) Catil-	
— 1/2199023255552's	12 0-16 0	— (French) Catil-	
— 1/4398046511104's	12 0-16 0	— (French) Catil-	
— 1/8796093022208's	12 0-16 0	— (French) Catil-	
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— 1/70368745777664's	12 0-16 0	— (French) Catil-	
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— 1/28147498310656's	12 0-16 0	— (French) Catil-	
— 1/56294996621312's	12 0-16 0	— (French) Catil-	
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— 1/225179986453248's	12 0-16 0	— (French) Catil-	
— 1/450359972906496's	12 0-16 0	— (French) Catil-	
— 1/900719945812992's	12 0-16 0	— (French) Catil-	
— 1/1801439891625984's	12 0-16 0	— (French) Catil-	
— 1/3602879783251968's	12 0-16 0	— (French) Catil-	
— 1/7205759566503936's	12 0-16 0	— (French) Catil-	
— 1/14411519133007872's	12 0-16 0	— (French) Catil-	
— 1/28823038266015744's	12 0-16 0	— (French) Catil-	
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— 1/461168612256251904's	12 0-16 0	— (French) Catil-	
— 1/922337224512503808's	12 0-16 0	— (French) Catil-	
— 1/1844674449025007616's	12 0-16 0	— (French) Catil-	
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— 1/7378697796100030464's	12 0-16 0	— (French) Catil-	
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— 1/472236658950401948928's	12 0-16 0	— (French) Catil-	
— 1/944473317900803897856's	12 0-16 0	— (French) Catil-	
— 1/1888946635801607795712's	12 0-16 0	— (French) Catil-	
— 1/3777893271603215591424's	12 0-16 0	— (French) Catil-	
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— 1/69689829815960984144800289780258304's	12 0-16 0	— (French) Catil-	
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THE LIFE OF SIR JOSEPH HOOKER.

FIRST PERIOD, 1817-1839.

JOSEPH DALTON HOOKER was the second son of Sir William Jackson Hooker, and was born at Halesworth, Suffolk, June 30, 1817. William Dawson Hooker, Joseph's only brother, was born in 1816, and died at Kingston, Jamaica, January 1, 1840. He was an ornithologist and entomologist, an M.D. of Glasgow, and a young man of great promise. Sir Joseph was already 48 years of age when his father died, in 1865, and the lives of father and son had been so intimately associated that some particulars of the father's distinguished career naturally precede an account of the son's life and work. Indeed, many events of the one life were of almost equal importance in the other, and many acts, official and otherwise, were the issue of co-operation. Of Sir William Hooker it may be said that he achieved greatness, almost independently, and by individual effort; of Sir Joseph that his greatness was no less the outcome of natural ability, but that that ability was seconded by the special training which he received.

Sir Joseph, in his *Life and Labours* of his father, writes:—"William Jackson Hooker was born at Norwich on July 6, 1785. He was the younger of two sons, the only children of Joseph and Lydia Hooker, of that city. His father was a native of Exeter, the home of many generations of the Devonshire Hookers, descendants of

John Hooker, alias Vowell, First Chamberlain of Exeter and member for the city, and editor of *Holiness's Chronicles*." When quite a child, William Jackson Hooker inherited a competency, through the premature death of his cousin and godfather, William Jackson, of Canterbury. He developed early a taste for various branches of natural history, in which he could indulge for his own pleasure. Botany, however, soon took the first place in his predilections, and his abilities and enthusiasm gained him a leading position and reputation, even as a young man. William Hooker entertained and corresponded with the most eminent of his contemporaries, both at home and abroad. Locally he became acquainted with Dawson Turner, banker and botanist, Sir James Edward Smith, and John Lindley. And as a young man, barely of age, he was introduced to Sir Joseph Banks and Robert Brown. In 1815 he married the eldest daughter of Dawson Turner, and in as many years there was a family of four children for which to provide. His investments had proved unsuccessful, and he felt it a duty to endeavour to increase his income by means of his botanical knowledge. Through the influence of his friend, Sir Joseph Banks, William Hooker was appointed in 1820 to the Chair of Botany in the Glasgow University. Although his course of education had in no way prepared him for such a post, he proved a brilliant lecturer, and at once became a great favourite. At first there was a little opposition to his introducing the natural system in his teaching; but that was transitory. He held the professorship at Glasgow for 20 years, till, in 1841, he was appointed Director of Kew Gardens.

Meanwhile Joseph was being educated for the long and remarkable career which has now come to an end. As subsequent events prove, his time at school and college was abundantly occupied and the range of his studies was remarkable. In his biography of his father, Joseph Hooker states that much of his own spare time was devoted to mechanical and other work in his father's herbarium. Evidently, too, the study of Cryptogams was amongst his earliest occupations in botany, for he was joint author with W. H. Harvey, subsequently a specialist in Algae, of a paper entitled "Musci Indici"—Hooker's *Journal of Botany*, vol. ii. (1840), pp. 1-21. This appeared, it will be seen, during his absence on the Antarctic Expedition, and is apparently his first publication. That he studied, more or less, all the groups of Cryptogams is confirmed by the fact that he was joint author throughout of the *Flora Antarctica*, although in the rest of the series of volumes specialists worked independently.

Sir Joseph's father and Lindley both made various preliminary arrangements to travel for the purpose, primarily, of botanical exploration, but in each case circumstances conspired to frustrate their plans. Sir Joseph was more fortunate. He qualified for naval service by obtaining the M.D. degree at Glasgow in

1839, and his opportunity arrived. In that year he was attached, as Assistant Surgeon and Naturalist, to Sir James Clark Ross's Government Expedition for the purpose of investigating the phenomena of terrestrial magnetism in the south circumpolar seas. As already mentioned, little is known of what may be termed the preparatory period of Joseph Hooker's life; but his surroundings and associations from boyhood were such as to equip him with all the necessary qualities of a scientific traveller of the first rank.

Among his numerous friends, none perhaps was so keenly interested in his future as Charles Darwin, his senior by only about eight years. Darwin's correspondence with the elder Hooker was limited, apparently, to about half-a-dozen letters, in each of which the son was the principal theme. It should be remembered that Darwin had returned in 1836 from the five-years' voyage in the "Beagle" brimful of facts and observations that served as the foundation for his brilliant work of the then somewhat distant future. Darwin recognised in Hooker a man after his own heart, and predicted for him a great career. He congratulated the father on his son's appointment to the Ross Expedition. The acquaintance thus begun led to the closest friendship, and Joseph Hooker became Charles Darwin's most esteemed and intimate friend and adviser, and one of the leading coadjutors in his imperishable work. Darwin, fresh from his voyage, was in a position to teach the younger man what directions his investigations should take; what facts were required; what evidence was necessary. The results may be gathered from Hooker's essays on the southern floras, culminating in his work on the Australian flora. Darwin's friendliness and prescience were amply rewarded.

AUSTRALASIA AND ANTARCTIC ISLANDS.

Ross's Expedition consisted of two ships, the "Erebus" and "Terror." The former, to which Hooker was attached, was commanded by Ross himself, and the latter by Captain Crozier, under whom Dr. David Lyell served in the same capacity as Hooker on the "Erebus," but Lyell took no active part in working out their joint botanical collections. Later in life Lyell was attached as botanist to the North America Boundary Commission, and made extensive collections, which he subsequently worked out and published.

The expedition left the Medway in September, 1839, and on the outward voyage calls were made at the Azores, Madeira, Canaries, Cape Verde, St. Paul's Rocks, Ascension, St. Helena, and South Trinidad. The visits, though short, furnished material utilised for a lecture on insular floras, delivered before the British Association in 1866, to which further reference will be made. South Trinidad is the island, it will be remembered, that was a subject of dispute between the Governments of Great Britain and Brazil in 1896. Sir Joseph Hooker was the only botanist who had ever set foot on the island. Ross's landing party, however, was unable to scale the cliffs, and so could not reach the interior of the island.

The fragments of only four vascular plants were secured—two Sedges, a Grass and a Fern. The two Sedges were described as new in the Botany of the Challenger Expedition, 1824. In this connection it may be mentioned that the interior of the island has since been partially botanised, and among the plants collected is *Asplenium compressum*, previously only known from St. Helena. To follow further this eventful voyage is not within the scope of this memoir, which must be limited to results, and practically to botanical results. With truth it may be said that the botanical results of Ross's expedition surpass those of any similar expedition both in quality and quantity. Their prompt publication established Hooker's reputation as a botanist and traveller of the first rank. The botany of this expedition is indeed a monumental and magnificent work, comprising six quarto volumes, published between 1844 and 1860, and consisting of 2,214 pages of letterpress and 528 plates, mostly drawn (or finished) and lithographed by the talented W. H. Fitch. There is a coloured edition and also a plain one; the original cost of the former being £40 17s. Both are now exceedingly rare.

The secondary titles are: *Flora Antarctica*, *Flora Nova Zelandia*, and *Flora Tasmania*; each division consisting of two volumes. The first comprises the Auckland and Campbell Islands, south of New Zealand; Kerguelen, Fuegia, The Falklands, and other islands in the American region. The other three are sufficiently descriptive.

In the form of an introduction, the *Flora Antarctica* contains a condensed summary of the voyage, and in the second part (pp. 209-223) is an account of the Antarctic flora, excluding the islands south of New Zealand; the *Flora Nova Zelandia* includes an essay on the flora in question; and the *Flora Tasmania*, an essay on the flora of Australia. These classical writings are remarkable throughout for the extreme caution with which theories and hypotheses are treated. Indeed, Hooker was never dogmatic; he recorded facts and discussed their bearings and probable or possible meanings, leaving his readers to make their own deductions. Latterly he agreed that some of the theories of almost general acceptance by geologists and phytogeographers of that period deserved serious reconsideration. The avowed object of the introductory essay to the *Flora of New Zealand* was to instruct the local botanist who had few opportunities of becoming acquainted with the views and theories of their more experienced and advanced brethren in the north, and there is no doubt that the effort has produced excellent results, for the botany of New Zealand has since been as thoroughly investigated as that of almost any country. This essay was published in 1853, some six years before Darwin and Wallace's views of the origin of species became public knowledge; but, as is now generally known, Darwin and Hooker and others had discussed the subject for some years before publication was effected.

On this point the author (p. viii.) says: "Although in this flora I have proceeded on the assumption that species, however they originated or were created, have been handed down to us as such, and that all the individuals of a universal plant have proceeded from one individual, and all of a bisexual from a single pair, I wish it to be distinctly understood that I do not put this forward intending it to be interpreted into an avowal of the adoption of a fixed or unalterable opinion on my part. Whether or not

such a theory be consonant with that great mystery, the origin of organic beings, animate and inanimate, is not the point I would here dwell upon; but the fact that it appears to me essential that the systematist should keep some such definite idea constantly before him, to give unity to his design, and to guide him in the more or less arbitrary restriction of the species of a variable genus to which he is unfortunately often obliged to resort. Except he act on the idea that, for practical purposes at any rate, species are constant, he can never hope to give that precision to his characters of organs and functions which is necessary to render his descriptions useful to others; for in groups where the limits of species cannot be traced (or, what amounts to the same thing in the opinion of many, where they do not exist), the object of the systematist is the same as in groups where they are obvious—to throw their forms into a natural arrangement and to indicate them by tangible characters, whose value is approximately relative to what prevails in genera where the limitation of species is more apparent. In the present imperfect state of our knowledge of the botany of any large area, we have not the materials for solving the great questions as to the origin and permanence of species upon general principles."

This brief yet philosophical treatment of the



FIG. 172.—MEDAL PRESENTED TO SIR JOSEPH HOOKER, BY THE LINNEAN SOCIETY, TO COMMEMORATE HIS 50TH BIRTHDAY.

species question clears the way for a later renunciation of the belief in separate creation, whilst accepting the doctrine of fixity in a certain limited sense.

The greater part of this essay is devoted to the consideration and discussion of the geographical distribution of plants, and in this sense was reviewed by Alphonse de Candolle, Asa Gray, and others, who extracted copiously therefrom. Gray's review, with extracts (*American Journal of Science*, vol. xvii., 1854), is a lengthy one, and concludes in the following terms:—"On fairly weighing all this testimony, the botanist will perhaps accede to our author's conclusion, viz., that the flora of these three great areas of land in southern latitudes exhibit a botanical relationship as strong as that which prevails throughout the lands within the Arctic and northern Temperate zones, and which is not to be accounted for by any theory of transport or of variation, but which is agreeable to the hypothesis of all being members of a once more extensive flora which has been broken up by geological and climatic causes." Some recent writers, notably A. F. W. Schimper, as edited by H. Schenk, in a singularly able and ex-

haustive essay (*Vergleichende Darstellung der Pflanzengeographie der subantarktischen Inseln, insbesondere Ueber Flora und Vegetation von Kerguelen. Wissenschaftliche Ergebnisse der Deutschen Tiefsee Expedition, zwölfter Band*, 1905), do not accept this theory, but account for the present flora by the agency of birds, currents and glaciation, with survivals of such types as Pringlea, Pleurophyllum, etc. This view is accepted by Mr. T. F. Cheeseman in a recent monograph of the flora of the Subantarctic Islands of New Zealand. Nevertheless, the discoveries of recent antarctic expeditions seem to favour the former existence of a circumpolar temperate flora of similar composition throughout.

Alphonse de Candolle, reviewing Hooker, hardly does him justice on the species question, due, probably, to misinterpretation. He postulates that—"Dr. Hooker ne croit pas facilement au transport de graines par le vent ou par les courants, à des distances de plusieurs centaines de lieues. . . . Ainsi en reconnaissant sur chaque île isolée, à Sté-Hélène à Kerguelen et ailleurs, des espèces particulières, il les croit autochtones nées dans la localité des leur origine. . . . Mais de plus, il les considère volontiers comme les restes de la végétation d'anciennes terres qui auraient disparu en grande partie." And, concerning the genus Pringlea, he says:—"Ainsi elle a été créée dans cette localité, pour y vivre pendant des siècles d'une vie tranquille et retirée."

Though Hooker did not always obtain the first fruits of the countries he visited, he often gathered the main harvest. Thus, in the case of the sub-Antarctic islands of New Zealand and Kerguelen, he was the first to describe nearly all of the endemic species of flowering plants, and also the remarkable genera Pringlea (though the name is attributed to Robert Brown), Lyallia, and the showy Pleurophyllum and Chrysobactron, now reduced to Bulbinella. The *Flora Antarctica* should not be left without mention of the large amount of space devoted to the gigantic Seaweeds belonging to the Laminariaceae, and to the genera *Macrocystis*, *Lessonia*, &c. Extraordinary lengths have been ascribed to plants of *Macrocystis pyrifera*, but Hooker thought that 600 or 700 feet is a reasonable estimate, though later authorities go as far as 200 to 300 metres.

The *Flora Tasmania* was published in parts between 1855 and 1860, and is the largest and in several respects the most notable of the three. The first volume consists of cxxviii. + 359 pages and the second of 422 pages, and the two contain 200 consecutively-numbered plates, illustrating all classes of plants except those of microscopic dimensions. Although Hooker was an excellent botanical artist, it is due to the memory of Walter Hood Fitch to repeat that the work owed much of its attractiveness to his genius. It is not an instance, however, in which the pictorial transcends the descriptive part of the book. The introductory essay on the flora of Australia generally is a masterpiece of analysis, written soon after the promulgation of the theory of evolution, and at a time when the author had arrived at a more decided opinion on the origin of species than he held when writing his essay on the flora of New Zealand. To give an idea of the questions discussed would require a whole chapter, and only a few facts and figures can find a place here. As the author states, the primary feature of the flora is its identity in all its main characters with the Victorian, except that there is a small New Zealand element of an element common to the two countries, and a larger Antarctic element. Indeed, it may be fairly described as a part and sample of the flora of extra-tropical Australia. Such characteristic Australian families as Dilleniaceae, Tremadraceae, Rutaceae, Leguminosae, Myrtaceae, Compositae, Goodeniaceae, Stylidiaceae, Epacridaceae, Proteaceae, Santalaceae, and Casuarinaceae abound in species. Such genera as *Acacia*, *Eucalyptus* and *Casuarina* predominate in the vegetation. Tasmania has an area of about 26,000 square miles, or little more than a quarter of that of New Zealand, and its mountains rise to a maximum height of 5,000 feet, as against 12,350 feet in New Zealand. Hooker enumerates in his *Handbook* 1,065 species of flowering plants for Tasmania, and 935 species for New Zealand. Subsequent explorations have added considerably to the number of species of flowering plants in

ORCHID NOTES AND GLEANINGS.

MESSRS. ARMSTRONG & BROWN.

THE model Orchid establishment of Messrs. Armstrong & Brown, situated on high ground in one of the most delightful parts of Kent and close to the Southborough Station of Tunbridge Wells, is an excellent example of a perfectly-planned nursery. The main block of houses consists of eleven commodious span-roofed structures, which open into a lofty corridor about 150 feet in length.

In the internal arrangement of the houses there are some special features worthy of note. The illustration (fig. 173) of one of the Cypripedium houses serves to show the brick-work arrangement beneath the staging, which Mr. Armstrong considers a very important help in ensuring uniform moisture and even temperatures. The brickwork is kept in a moist condition, and the hot-water piping, which is laid as low as possible, gives warmth to the walls, which in turn radiate heat and evaporate moisture, thus preserving a healthy atmosphere and preventing rapid falls in the temperature, which often happen in winter, when the hot-water piping is solely relied on. Proof of the salutary effect is seen in the healthy and clean condition of every plant on the place.

The brickwork also serves another purpose. In the building of the outside walls bricks are arranged projecting inside, and below the top course of the arched walls seen in the illustration is a ledge from which from front to back angle-iron is arranged to support the tiles covered with shingle, which form the lower moisture-holding stage. Openings are left in this stage to admit of the even circulation of the heat. Most of the houses have a 4½-inch ledge just below the eaves inside, and on this the drip-guttering fastened beneath the rafters discharges moisture and assist in keeping the wall moist. These ledges are used for supporting small plants, and they thrive well, especially the moisture-loving kinds, a remarkable example being *Cœlogyne pandurata*, which, from single bulbs, is making strong plants.

The effect of this automatically-balanced heat and moisture is that heavy waterings are not required. Spraying is the favourite method of distributing moisture. In the many houses of fine hybrid *Cattleyas* and *Lælio-Cattleyas*, each bearing the earliest pseudo-bulb an inch or so high, and the later pseudo-bulbs showing the rapid progress of the plants, some of which now bear two or three leading growths with flower spikes, the material in the pots is comparatively dry, though filled with roots. It is certain that *Cattleyas* and *Lælias* root more freely in a properly-arranged house, where the plants can be kept plump without heavy waterings. Four saddle boilers give perfect command of the heating power, but they are worked at low pressure.

For potting material a little-known fibre called A.I., and said to be a British product, is much used here either for mixing with *Osmunda* or alone. It is finer than *Osmunda* fibre, and said to be more durable and free from fungus. Potting is carried on all the year round. When plants require repotting the date of season is not considered, but in the winter months special care is taken in watering newly-potted plants. The long corridor has suspended from the roof some thousands of hybrid *Dendrobiums* showing marvellous growth, some of the *D. rubens grandiflorum* class having stems 4 feet in length. Here also is a fine collection of *D. nobile* varieties, including about 2,000 plants of the pure white variety, many of which were shown in our illustration of Messrs. Armstrong & Brown's group of this plant at the Royal Horticultural Society's meeting in the issue for July 3, 1909.

An interesting plant in the corridor is a mass of *Cattleya*, *Triana* fastened to the brick wall, and sending roots around 5 feet or 6 feet in length, and clinging to the wall.

The first house is principally of showy *Lælio-*

Cattleyas, some of which were in flower, the most striking being a batch of *L.-C. George Woodhams* (*C. Hardyana* × *L. purpurata*), raised by Mr. Armstrong. Its flowers are large, of very rich rose and claret-crimson colour, and it appears to be one of the first introductions to excel *L.-C. callistoglossa*, which is also in flower. A batch of the showy *Cattleya Armstrongiae* (*Hardyana* × *Loddigesii*) with some in bloom, bearing six or seven flowers on a spike; *C. Atalanta*, with seven flowers on a spike; some *Lælio-Cattleyas*, one being an improvement of *L.-C. Exoniensis*, and others were in bloom, and fine specimens of *Cœlogyne Dayana* with enormous growths were thriving on the stage. The second house was of *Cypripediums* mostly in flower, overhead being suspended seedling *Lælio-Cattleyas*, *Sophr. Cattleyas*, &c. Of the *Cypripediums* *C. Franconia* (*callo-Rothschildianum* × *callosum Sanderæ*) was a grand flower, the long and broad petals being uniformly spotted with claret-purple. In most of the houses are some interesting and curious species, *Cirrihopetalum appendiculatum*, *Bulbophyllum Godseffianum*, and some others being in bloom. The third house con-

insigne and *C. nitens* varieties, special forms of *C. Leeanaum*, and some new hybrids were among those in flower, and at the end was a good specimen of the rare rose-tinted *Oncidium corynephorum*.

The seventh large house contains thousands of seedling *Odontoglossums* with *Odontodas*. Many of the plants were in flower or bearing spikes; one fine specimen had a heavy inflorescence of 18 large flowers, with a large seed capsule maturing on last year's spike, showing that good cultivation prevents deterioration even under such conditions. At one end of the house was probably the largest mass of *Odontoglossum nævium* in cultivation, some pretty mauve-coloured *Odontodia Thwaitesii*, and *Cattleya Skinneri alba* with seven leading growths.

Lælio-Cattleyas and *Cattleyas* in fine condition occupy the next house, with *L.-C. callistoglossa*, *L.-C. Berthe Fournier*, plants of *Cattleya Fabia*, including the variety *alba*, and others in flower, *Dendrobium Cœlogyne* having three fine blooms. Secondary crosses with *Cattleya Dowiana* promised well for bloom.

The succeeding house was filled with thousands of hybrid *Cattleyas* and *Lælio-Cattleyas*,



FIG. 173.—CYPRIPEDIUM HOUSE AT MESSRS. ARMSTRONG AND BROWN'S NURSERY.

tains *Cypripediums*, *C. bellatulum*, with very large and well-marked flowers, evidently liking a position on the moist ledge near the glass of the roof. In this house are quantities of unflowered seedlings, and suspended overhead are some *Dendrobium* crosses, one being very interesting, as it promises to prove that *D. Sibyl* is not the result of crossing *D. Linawianum* and *D. bigibbum*. This cross is *D. Linawianum* × *D. crassinode*, and the plants are not distinguishable from *D. Sibyl*.

Next we come to a house nearly filled with *Brassavola Digbyana* crosses, including all the known varieties and some as yet unflowered. Several very handsome *B.-C. Mrs. J. Leemann*, a showy lot of *Cattleya Fabia* of rich colour, *Platyclinis Cobbiana*, with graceful sprays of yellow-lipped white flowers smelling like *Celery*, and other pretty plants were in bloom.

The house of *Cypripediums* (fig. 173) comes next. The profusion of flowers may be judged by reference to the illustration, but not their varying tints. Many plants of *C. Fairrieanum* crosses, including the neat little *C. Mrs. Spender Clay* (*Acteas* × *Fairrieanum*), a large batch of *C.*

and throughout the remainder of the block vigorous and clean plants were seen on all sides.

Approached through the spacious packing shed is a block of smaller houses containing rarer plants, including white *Cattleyas* and *Cypripediums* for purposes of hybridisation or propagation. Among those in flower were *Cypripedium Bianca*, the first rival of the pretty *C. insigne Sanderæ*, and of the same yellow and white colour, but larger and of better shape; *C. Thalia Mrs. Francis Wellesley*, a standard beauty; *C. Germaine Opoix*; some very fine *C. Priam*; a new form of *C. Arthurianum*, with flowers resembling *C. Thalia*; *C. Niobe Westonbirt variety*; *C. Gaston Bultel*; a batch of *C. Maudie* × *C. callosum Sanderæ*, which seems to be the best and most floriferous *Cypripedium* with emerald-green and white flowers; *C. Dreadnought*, a massive flower; *C. Duke of Connaught*, of great beauty, the emerald-green and white of the dorsal sepal being very attractive, and the dark spotting remarkable; several crosses with *C. insigne Harefield Hall* showing marked improvement; *C. Dayanum* × *bellatulum album*, a distinct flower, and a very large

number flowering for the first time, but not yet established sufficiently to estimate their value.

In another house secondary crosses of Cattleya Bowringiana and various Laelia-Cattleyas were maturing, and a batch of plants of botanical interest included some of the showier Bulbophyllums, such as *B. Ericssonii*, *B. virescens*, and *B. Reinwardtii*.

The seed-raising house is fitted with glass-covered cases, inside which a rather high temperature is maintained, and the seeds germinate rapidly. They are removed when large enough to handle, and many attain the flowering stage in a very short time. A plant of Cattleya Mendeli Stuart Low and other rare sorts are in this house, which also contains *Dendrobium superbum album*, and several interesting crosses of *D. Dalhousianum*.

A north lean-to house contains a good selection of good forms of *Odontoglossum crispum*, and some of the best hybrids, *Cymbidiums*, *Lycastes*, and other intermediate house plants in fine condition.

CYPRIPEDIUM CHAPMANII "WESTONBIRT VARIETY."

The original form of this showy hybrid was raised by Mr. H. J. Chapman. On May 26, 1897, it was awarded a First-class Certificate, and was always a great favourite. The variety illustrated, raised by Mr. H. G. Alexander, gardener to Lieut.-Col. Sir George L. Holford, between fine forms of *C. bellatulum* and *C. Curtisii*, was shown on November 21 last, and it secured a similar award. It is larger than the original, and of a deeper claret-purple tint in the markings on its cream-white ground colour, which is also tinged with rose between the markings. *C. Chapmanii* has another advantage as a desirable garden plant in that it is one of the best growers in the section.

ILLUSTRATIONS OF ORCHIDS.*

The first issue of this publication by Monsieur Julien Constantin indicates that the work when complete will form a valuable addition to Orchid literature, especially if taken in conjunction with *Les Orchidées Cultivées*. The object of the *Atlas* is to describe and illustrate as many of the Orchids in cultivation as possible, and yet not to exceed a handy volume in bulk. The work commences with the history of the Orchid family; the structure, variations and other characteristics of these plants. The plates represent the principal members of the genus *Cypripedium*, each being very much reduced in size, but faithful in form and colour.

TREES AND SHRUBS.

EUCRYPHIA CORDIFOLIA.

A SPECIMEN of this handsome, evergreen, Chilean shrub has for the past three years flowered annually in these gardens, and has now ripened seed. The capsules apparently require 14 or 15 months to mature in England, increasing slowly in size for at least 10 months before showing any sign of ripening. In common with most other plants, this year's crop of seeds is far more plentiful than usual. The plant is now about 13 feet in height and one-third as much in width. It is sheltered at a distance of 12 yards by a wall 9 feet high and a thin grove of trees on the north and east at distances 30 and 50 yards respectively, but it is fully exposed to the sun. Our experience proves that the plant is not so tender as is generally supposed. The sandy loam in which it is growing appears to suit it; its average increase in height for the past three years having been 2 ft. 3 in. The strongest shoots are rarely matured when checked by frost, but, though the youngest leaves are browned thereby, the terminal bud is only occasionally destroyed. I enclose a few sprays bearing seed capsules. *J. Comber, Nymans's Gardens, Handcross.*

* *Atlas des Orchidées Cultivées*. F. Orliac, 1, Rue Dante, Paris.

THE ROSARY.

THE PRUNING OF ROSES.

THE N.R.S. have recently issued to their members the third edition of the *Handbook on Pruning Roses**, containing directions for pruning some 1,200 to 1,300 varieties of Roses. The book follows very much on the lines of its predecessors, and it is only necessary to notice the modifications that have been made in the present edition. In the earlier instructions for pruning the ordinary garden Roses, that is to say, H.P.'s, H.T.'s, and Teas, the three illustrations showing the unpruned Rose which appeared in

for exhibition and garden purposes. The advantage of this alteration is not, at first sight, very obvious. It would seem generally more convenient to have the instruction placed opposite the drawing illustrating it, but, probably, the object may have been to bring into sharper contrast and accentuate the difference between pruning for exhibition and for garden purposes.

The book now contains two very clear drawings showing how to prune dwarf Tea Roses. In the previous editions, the only drawings illustrating the pruning of dwarf or bush Roses had probably been taken entirely from hybrid perpetuals, and many members had found themselves at a loss when they tried to apply the



FIG. 174.—CYPRIPEDIUM CHAPMANII "WESTONBIRT VARIETY."

(Received R.H.S. First class Certificate on the 21st ult.)

former editions are now generally omitted, no doubt with the object of saving space, and in view of the fact that in the illustrations showing the pruned plant the parts that have been cut off are shown in dotted lines, so that the size and features of the unpruned plant may be gathered from them.

The drawings illustrating the instructions for pruning, instead of facing the instruction to which they relate, are now collected together in pairs, so that each of the pair faces the other; the pair of illustrations in most cases representing the different ways of pruning the same Rose

methods shown in drawings which illustrated the rather stiff and upright habit of these varieties of the Roses of a more spreading and branching habit of growth, such as is generally found to be the case among the Tea Roses. The illustrations now inserted in the *Pruning Book* show how to deal with Roses of this branching type.

The instructions for pruning the summer-flowering, climbing Roses contained in the *Multiflora scandens* and *Wichuraiana* groups have been entirely revised and rewritten (see Instructions xxv. and xxxv.), and as these are both clear and concise, there should be little difficulty in following them, or in understanding the reasons for the operations suggested. The

* *Handbook on Pruning Roses*. Price to non-members of the society, 2s. 6d.

directions as to the time of pruning, especially in the case of the Wichuñalanas, raises a question of some interest, which is, perhaps, scarcely yet settled. At the head of the instruction we find: "Prune as soon as possible after flowering is well over"; while later on it is stated: "The pruning . . . may be done as soon as the flowering is over, and should be completed by the autumn or early winter." Now, nearly all the Wichuñalanas have finished flowering by the middle or end of August, and some earlier, and, admitting that the pruning of these Roses ought to be completed before the spring growth commences, the problem is whether it is better to prune in August or early winter, say, about Christmas time. The advantages of August pruning are, first, that we allow the young growths on which we are to depend for flowers next year all the sun and air they can get for ripening the wood, second, that we are able to get rid of the loose, surplus growth of summer, and make pillar or pergola neat and tidy in the autumn garden, and, third, that we have probably pleasanter weather for performing the operation. The disadvantages of August pruning, which operate in favour of deferring the operation till Christmas, are that we suddenly cut off, in August, an enormous mass of foliage, which must cause a check to the nutrition of the plant; we miss the chance of obtaining the occasional autumn flowers which, in some seasons, may be intermittently produced up to Christmas (it is curious that in the autumn following the hot summer of 1911 we seem, at least in some places, to have less of this intermittent autumn flowering than is usually the case), and, what is, perhaps, more important than anything else, we lose the rich autumnal effect produced by many Roses of this class, Dorothy Perkins, for example, when the foliage darkens and begins to turn a russet-red in the autumn frosts. It is quite likely that not only do we want further experiment and observation to settle the question, but also that the one method may be best for one position or use to which the Rose is put, and the other for other positions and uses.

Since the last edition, the names of nearly 200 Roses have been added to the list at the end of the book, which gives for each variety a reference to the instruction suitable for its treatment. This list is interesting from another point of view, for it is probably a fairly complete enumeration of the Roses now commonly cultivated in gardens. Taken all round, this little book is, perhaps, one of the most useful and generally appreciated of the National Rose Society's publications. *White Rose*.

THE ALPINE GARDEN.

HELICHRYSUM FRIGIDUM.

THE rare little *Helichrysum frigidum* has largely dropped out of cultivation, but as importations from Corsica, its native country, have been made recently, it is to be hoped that it will become plentiful again. It is classed by some authorities as only half-hardy, but with care it may be expected to stand ordinary winters. It requires, however, a very dry and well-drained soil and a sunny, sheltered position. A wise precaution will be taken if a sheet of glass is put over it to throw off the winter rains and sleet. This *Helichrysum* is one of the plants with silky foliage which require some shelter of this kind.

It is not a showy, but a pleasing little plant, growing to a height of some 3 inches or so, having little leaves covered with silky hair, and bearing heads of small, silvery-white flowers. It is of rather trailing habit, and is excellent for the dry, sunny rockery. *S. Lloyd.*

BACK TO THE HILLS.

(Continued from p. 410.)

THE FASSA-THAL.

THE Fassa Valley runs up into the heart of the Southern Dolomites, and in its higher reaches gives, not limestone only, but long out-crops of black igneous rock, where the flora changes instantly. At its lower end the Fassa-Thal becomes the Fleimser-Thal, and indulges in a perfect riot of miscellaneous igneous formations, porphyry and syenite, arranged in a manner which violates all geological propriety. From Canazei, however, at the head of the valley, the way goes smooth and calcareous up to the Fedaja Pass, under the northern face of Marmolata. By the rivulets, *Silene alpestris* abounds, and *Papaver rhaticum* has seeded down into the shingles by the stream. As soon as you enter the wood *Saxifraga squarrosa* begins to luxuriate in all the mossy crannies of the boulders. The more one sees of this charming little plant, the greater grows one's bewilderment as to its analogies with *S. caesia*. *S. caesia* is an almost universal plant. *S. squarrosa* is a much rarer one, endemic to the Dolomites; it haunts the lower mossy rocks for choice, as it seems to me, though it also ranges up to the bare, open cliffs above. It is up above, however, that *caesia* is almost always found in the Dolomites—far up, on bare shingles and desolations. Yet here its twin, *S. squarrosa*, may also be found; and the two species, so closely allied as sometimes to seem indistinguishable, interbreed and produce *S. tyrolensis*.

As for *S. crustata*, the plant is so really ugly in flower that the gardener must resist the charm of its lovely silvered foliage. It is uglier than the ugliest aizoon, which also abounds on the Fedaja, though at much higher levels, and on much more open rocks, than those affected by *crustata*. Whereas, above Misurina, *S. crustata* climbs high upon the bare rocks, and *S. aizoon* rarely occurs at all. As the path continues climbing through the woodland, *Gentiana asclepiadea* grows frequent, and higher yet, on open slopes, *Anemone baldensis* runs about amid a solid carpet of purple *Horminum* and scarlet-orange *Senecio abrotanifolius*. The *Horminum* is a plant of intensely calcicole nature, and is lauded by catalogues. I share fully the view expressed not long ago in the *Gardeners' Chronicle*, that it is a dowdy weed, like a very inferior dingy *Salvia*, unworthy of notice. I have once, however, collected a beautiful form of it (the plant grows by the sheeted mile in the Dolomites), large-flowered and white, with a very faint, delicate hem of purple round the lip. As to *Senecio abrotanifolius*, fine-leaved, dainty and neat, it is absolutely gorgeous in its colouring. Alas, I have often grown it, but never yet have I made it flower as it should.

The path now passes under cliffs, from which the Flannel-flower flaunts in bushes. And also, much more pleasant than the Edelweiss, and much less plebeianly profuse, there are soft-green rosettes of *Primula Auricula* in one of its most marked local developments—not *Auricula*-type of the Oberland, nor glorious great grey-and-silver *A. Bauhini* of Lombardy, not *A. ciliata*, golden and brilliant, of the Misurina ridges—but a form, probably, of *P. A. Obriistii*, green and downy, with flowers of a bland, pale-sulphur (in at least one specimen of mine). This grows in dense limestone rock, with *Pedicularis Bona-rosa* and *Saxifraga squarrosa*. And there remains at least one other form of *Auricula*, so far unnamed, I think, and undescribed—the flimsy-green, musk-scented plant from wooded rocks on Rocca Longa, whose flower I have never yet seen, though I have thrice collected the rosette, and proved it unvarying in culture. The leaves, however, darken to a sombre green in the garden, and their texture becomes much thicker.

The summit of the pass is not very repaying. Here the Marmolata descends in long, stone-slopes, all aglow with Alpine Poppy and *Thlaspi*,

with here and there rare mats in the shingle of *Saxifraga caesia*, *S. squarrosa* and *Potentilla nitida*. Otherwise there is little, except *Armeria alpina* turning a neighbouring meadow into a sheet of pink. So wet a meadow, too, that from afar I swore that the *Armeria* was *Allium Schoenoprasum*. And the Marmolata, seen from here, is only a vast, confused, and not very dignified snowfield—like a colossal rotten tooth, many miles long, filled up with snow between its cusps. However, if one ascends on the opposite ridge the mass begins to gain in impressiveness by dint of mere size. One climbs and climbs. This ridge is all igneous, and the flowers different. Suddenly at the path-side, there is an eruption of blue flares on a dark little stone-heap. It is *Eritrichium*. Immediately, disregarding all the many acres there of flowering *Primula longiflora*, I rushed and toiled to the high crest of the ridge. And never have I seen such sights. I do not exaggerate when I say that all those crags and cliffs and screes glimmered azure from many hundred yards away. The ridge was of a curious volcanic conglomerate, black and blasted. On its rocks, wherever celestial slabs of *Eritrichium* left room, there were *Geum reptans*, *Ranunculus glacialis*, *Androsace alpina* (glacialis). But this was an *A. alpina* quite new to me. One knows this species well, the roseate glory of the highest granitic shingle, of which albinos are of rare occurrence. Yet here, and always on the igneous rock of the Dolomites, the plant inhabited, not fine shingles, but very rough debris or precipitous cliffs, exactly after the heart of *A. helvetica*. And here its flowers are invariably white. In many thousand specimens, I only saw two with a very faint and feeble tinge of rose. Then there was *Primula minima* lingering in bloom on the turf arête, and, actually, in those volcanic cliffs, a fair quantity of the vehemently calcicole *Androsace helvetica*. Last of all, on a stark cliff impending over gulfs unguessed, there was *Eritrichium nanum grandiflorum album virginalis*, *foliis aureo-variegatis*—a marvel of white beauty, indeed, on its impregnable ledge. I imperilled my life to poke off a cutting, but with no result. *Brygnald Farrer.*

(To be continued.)

SCOTLAND.

EDINBURGH ROYAL BOTANIC GARDENS.

THE dispute between the Corporation of Edinburgh and the Commissioners of His Majesty's Board of Works, regarding the building line of the proposed addition to the buildings at the Edinburgh Royal Botanic Gardens, has reached a stage at which the powers of the Court of Session are invoked by the Corporation. The record in the case has just been closed. It takes the form of an action by the Corporation against the Lord Advocate, as representing the Commissioners of the Board of Works for declarator that the defenders have no right to erect houses or buildings on a portion of the Royal Botanic Gardens at a distance of 30 feet from the centre line of the street (Inverleith Row), or to erect houses, walls, or other buildings above 7 feet high there, within a distance of 25 feet from the centre, without the consent of the complainers. Interdict is also sought against the erection of the buildings.

The defenders plead under Section 78 of the Act of 1906 their property is exempted as well as at common law, being Crown property.

In the record various statements are also made regarding the buildings erected in 1910. Lord Cullen has sent the case to the Procedure Roll.

THE "SCOTTISH BOTANICAL REVIEW."

THIS is the name of a promising new venture in the shape of a quarterly magazine, the first number of which will be issued in January. It has originated because of the decision of the

Annals of Scottish Natural History to give up its botanical section, and to limit itself to zoology. From the circular which is being issued, we gather that the magazine will, in the first place, be devoted to Scottish botany, but that this will be interpreted in its broadest sense. It is to have the support, financial and otherwise, of the Edinburgh Botanical Society, under whose auspices it will be published.

BLAIRGOWRIE AND RATTRAY FRUIT-GROWERS' ASSOCIATION.

At the annual meeting of this association it was reported that the sales of fruit through the association had amounted to 340 tons. Although there was a larger number of members, this was a decrease upon the quantity of last year. Ex-Bailie Adamson has been re-appointed president.

RETIREMENT OF MR. CHAPMAN.

MR. M. CHAPMAN, for many years gardener to the late Charles Jenner, Esq., Easter Duddington Lodge, Edinburgh, and who has for a number of years been in business as a nurseryman at Torbrex Nurseries, St. Ninians, Stirling, has disposed of the nursery and will retire to private life, residing at Bannockburn Road, Stirling. At the Torbrex Nurseries Mr. Chapman made a speciality of alpine and other hardy flowers, and he hopes to spend his leisure in tending his favourite alpine in his garden.

FLORISTS' FLOWERS.

SELECT VARIETIES OF VIOLAS.

SOME years ago the fancy Pansy held a very high place in the floral world, and as a competition flower was second to none in the amateur's estimation, but as the Show Pansy had to make room for the Fancy, so also has the latter given place in large measure to the Viola.

With the exception of the Sweet Pea, there is probably no more popular flower than the Viola at the present time.

Where Violas do best is a question often asked and readily answered, as these hardy, free-flowering subjects seem to succeed in almost any position in the garden. It would, of course, be quite useless to plant them in a position where there is a total absence of sun, for sunshine has much to do with their well-being.

They may be used for many purposes, but when massed in beds in large gardens they are seen to advantage, while for ribbon border work they are really charming during the spring and early summer. Of late years they have also been much used for carpeting Rose beds; while in terrace borders they may be employed with great effect, and if planted in groups in a herbaceous border they will add greatly to its attractiveness.

A few of the best bedding varieties and colours are—

WHITE: Swan, Seagull, Snowflake, and White Empress.

BLUE: True Blue, Admiral of the Blue, Royal Scot, and Chas. Jordan.

PURPLE: J. B. Riding, Councillor Waters, and Mrs. C. Turner.

YELLOW: Redbraes Yellow, Grievei, Walter Welsh, Klondyke, and Moseley Perfection.

LAVENDER and LILAC: Kitty Bell, Maggie Mott, Mauve Queen, and Ophelia.

BLUSH or PALE ROSE: Wm. Neil, Florizel, and Come to Stay.

WHITE GROUND EDGE VARIETIES: Mrs. Chichester, Lark, and Lady Grant.

YELLOW and PRIMROSE GROUND EGGED VARIETIES: Minnie J. Allan and W. P. A. Smyth.

FANCY VARIETIES: Griffin Smith, Mrs. F. W. R. Johnstone, and Dr. McFarlane. J. B. M.

OSTEOMELES ANTHYLLIDIFOLIA.

THE genus *Osteomeles* has a very wide range of distribution, occurring in China, Japan, the Sandwich Isles, the Andes of Peru, and the islands of the Archipelago of Magellan. *Osteomeles anthyllidifolia* (see fig. 175) was discovered by the Abbé Delavay, who sent seeds to Paris, from which plants were raised. Although it belongs to the natural order Rosaceae, this species, when not in flower, might very easily be mistaken for a papilionaceous-flowered leguminous plant, and it owes its specific name to the appearance of its long, pinnate leaves, which closely resemble the foliage of a Kidney Vetch (*Anthyllis*). In Paris, where it is cultivated in an unheated house, it has formed a shrub about 5 feet in height, with slightly twisted and gracefully inclined branches of a purplish-brown colour and densely coated with tomentum when in a young state. The leaves, which are alternate, are composed of 10 or 11 pairs of small, oval-ovate

peal in a cold house. It is quite possible that the seed may not germinate until the second year after sowing, so that if no seedlings make their appearance during the first year, one must wait patiently to see what the second year may bring forth. The seedlings should be potted at about the end of August in 2-inch pots, and placed in a close frame for some time to facilitate their forming roots. In October the young plants may be removed to a cold house for the winter. In the following August the plants may be shifted into pots proportionate to their size, and treated in exactly the same way as they were during their first year. By following these directions, vigorous and thriving plants may be obtained in three or four years from the time of sowing the seed. This *Osteomeles* may also be increased by cuttings of half-herbaceous shoots inserted under bell-glasses in a cold house in July and August. The cuttings should afterwards be potted singly into small pots. They usually take from a month and a half



*Photograph by Wynndham Fitzherbert.

FIG. 175.—*OSTEOMELES ANTHYLLIDIFOLIA* FLOWERING AT KINGSWEAR, DEVON.

leaflets, which are very downy on both sides. The flowers are white, and are borne in terminal corymbs of from 10 to 25 blossoms. Plants grown under glass produced flowers in February, but in the open the blossoms do not appear until April or May. This year the *Osteomeles* flowered in the latter month, and retained some of its blooms until June. The flowers are succeeded by clusters of small, oval, fleshy fruits, somewhat resembling those of some kinds of Cotoneaster. These fruits are at first green, then change to a purplish-red colour, and finally become black, with a mealy bloom, when quite ripe. The *Osteomeles* does not appear to be particular as to soil. In my garden at Kingswear, Devon, it is planted in sandy peat, and has done well. Propagation is effected by seeds, by cuttings, and also by grafting. As the seeds have a bony covering or shell, they should be sown as soon as they are ripe in light soil that is not too damp. They are best sown in pans of sandy

to two months to strike root, and this, therefore, will come to pass some time between the middle and end of September. They should be treated in the same way as has been indicated for seedlings. As regards grafting, it was a long time before a suitable stock was found. Quince, White Thorn, and Pear were tried unsuccessfully. The resemblance noted between the fruits of the *Osteomeles* and those of the Cotoneasters led to Cotoneaster acuminata being tried as a stock. About fifteen grafts were made, and all the stocks and scions united in a short time. The specimen shown in the accompanying illustration is about 3 feet high and 4 feet in diameter. It was very pretty in the spring when bearing its white, Hawthorn-like flowers, which are sweetly scented, and it afterwards bore about a dozen berries. The plant has been in the same position for four years, and is unprotected in the winter. Wynndham Fitzherbert.

The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLYFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

CYPRIPEDIUM AND SELENIPEDIUM.—The members of the section of this genus which flower during late autumn and winter are of the most importance, as they provide an almost endless variety of beautiful flowers when other blossoms are scarce. When we remember the ease with which these *Cypripediums* may be grown, their floriferousness, and the lasting properties of their flowers, it is not surprising they are held in high estimation in gardens. Another excellent quality of the *Cypripedium* is that the flowers suffer less from the effects of fog, perhaps, than those of any other Orchid in cultivation. For all kinds of decorative purposes the flowers are invaluable. As cut blooms, arranged with suitable foliage, they present a pleasing appearance. Well-flowered plants are also beautiful subjects for decoration, and, if reasonable care be taken, specimens in bloom may be brought into a dwelling house for a few days without any damage resulting. The members of an allied group, the *Selenipediums*, are also highly-ornamental plants. The various kinds flower at almost all times of the year, but principally in winter. The plants are not only valuable on account of their finely-coloured flowers, but also for their floriferousness, the flower-spikes producing a succession of blooms which last during several weeks in a good condition.

WINTER TREATMENT. Plants of these Orchids are always, more or less, in active growth, hence absolute dryness of the rooting material for any length of time would prove injurious. During the present season the minimum amount of root moisture is required, and, when the plant has its flowers fully developed, the compost may be allowed to become comparatively dry before affording water, following up this treatment for some few weeks after the plants have ceased to flower. A moist atmosphere must be maintained always, but care should be exercised to avoid a saturated one with a low temperature, especially when the plants are in bloom. During this stage they should be afforded a minimum temperature of 50° to 65°.

EPIDENDRUM VITELLINUM MAJUS.—This late autumn-flowering Orchid is a most attractive subject, and one of the easiest to cultivate if grown in a well-ventilated structure where a cool, intermediate temperature is maintained. Up to this time the pseudo-bulbs are fully matured, copious supplies of water at the root are needed, but during the winter season, when the plants are resting, moisture afforded at long intervals will suffice to keep the pseudo-bulbs firm, the roots healthy, and the foliage fresh.

MILTONIA VEXILLARIA.—*Miltonia vexillaria* needs very careful treatment in the matter of root watering during winter. The plants should occupy a light position in a house where a minimum temperature of 50° to 55° is maintained. Under these conditions moisture at the roots must be afforded with caution, as only sufficient water is necessary to keep the pseudo-bulbs from shrivelling, and the roots and foliage healthy. The plants should be examined occasionally to ascertain if the edges of the central leaves of the young growths are adhering to each other; if so, they should be released with the aid of the thin part of a budding-knife handle, or some similar instrument. The above remarks apply also to *M. bleiana*, except that this species should be afforded a slightly higher temperature.

CÆLOGYNE BARBATA.—This is a most useful winter-flowering Orchid that succeeds well under a cool, intermediate treatment. It is a suitable subject for growing in baskets, but ample drainage should be afforded. During its period of active growth the plant enjoys a fair supply of water at the roots, but much less after its pseudo-bulbs are matured. The flowers will continue in perfection for a long period, provided they are kept free from damping.

PLANTS UNDER GLASS.

By JAMES HUTTON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnetbury House, Acton, Middlesex.

LAPAGERIA.—Where it is proposed to remove *Lapagerias* that are planted out, the work should be done during the present season, and the roots should be taken up with a good mass of soil attached to them. It is advisable to renew the soil occasionally for this plant, and to put the drainage materials in a proper order, using broken potsherds in preference to brick rubbish, as it is my experience that the *Lapageria* is not partial to lime in any form. My practice is to use good peat, but not of a spongy or soft texture with about one part in four of fibrous loam and a liberal quantity of silversand. Make the new soil quite firm about the roots, and then give a good soaking with water. Thin out any of the very weakly growths, and afterwards train the remaining shoots in the position they are to occupy. It is probable that insect pests are present on the plants, and the white scale insect especially may be looked for. Now is the best time to give the plants a thorough cleansing, first syringing them with warm water, and afterwards sponging the leaves and stems with a suitable insecticide, remembering that the leaves are very brittle and care is necessary to prevent damage. Young plants may need an extension of the root run, and if this be necessary employ the same soil as recommended above, but be careful not to provide too much fresh compost at one time. In doing all these operations, remember that the young shoots, as well as the leaves, are very tender, and care will be needed to protect them from becoming damaged. Slugs are very fond of the young growths, but these may be prevented from doing harm by pegging a band of cotton wool on the soil around the plants, or sprinkling Oat chaff at the foot of the stem. Take care that *Lapagerias* in pots do not become excessively dry at the roots. Any specimens that are pot-bound may be afforded a slightly larger pot; the roots will soon enter the new soil, as they are nearly always in an active condition. *Lapagerias* do not need to be placed in full exposure to the sunshine; beneath a north wall or other situation that is shaded is a suitable place, but be careful not to stand the plants too close to the hot-water pipes, as dry conditions are very harmful to them.

CORDYLINA.—Any plant of *Cordylina* with a bare stem but healthy head of foliage may be made into a good specimen by ringing. This is an easy operation, and the present is a good time to carry it out. In the case of a large plant, select a 6-inch pot, cut it in halves with a saw, and make holes large enough to fit easily around the stem in the bottom of each half. Secure the pot firmly around the stem and then cut a notch in the latter, just below the pot, say, for a distance halfway round, increasing the size of this notch afterwards a little at a time. Fill the pots with soil, which should be kept in a fairly moist condition to encourage roots to develop. In the spring, when the pot is well filled with roots, replace it by a larger receptacle cut in the same manner and filled with good soil. When the roots have filled this larger receptacle, sever the stem below the pot, and in order that the plant may have every favourable opportunity, place it inside square handlights, one or more on top of each other, as may be necessary. After a time the handlights may be removed. Good specimens may be obtained in this way, but it will be as well not to employ them for decoration out-of-doors the first season, as winds may cause too great a strain on the young roots.

PELAGONIUMS.—Plants of *Show* and *Regal Pelargoniums* should be placed in a position well up to the light. My practice is to stand these plants on shelves at this season. Keep the roots on the dry side, as it is not desirable for the plants to make much top growth until the days lengthen. Cuttings inserted last season may need a little extra attention in the matter of watering, but avoid an excess of moisture in order to prevent a sappy growth. Scented-leaved *Pelargoniums* intended for specimen plants should receive attention in training. If the shoots are stopped now, suitable growths will develop in the spring. Do not damp the foliage of these plants until the days are brighter. All these *Pelargoniums* should be given a cool treatment, with plenty of ventilation; a night temperature of 40° will be suitable in frosty weather. Aphis

may make its appearance, and whenever this pest is detected, the house should be fumigated at once. Zonal *Pelargoniums* intended for flowering at this season should be afforded a warmer and more generous treatment than the others; a temperature of 50° is suitable. Keep the atmosphere of the house buoyant and free from excessive moisture, also the glass of the roof scrupulously clean both inside and out, in order that all the light possible may enter.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Asst. Clinton Gardens, Buckinghamshire.

STANDARD CHERRIES.—Standard Cherries succeed best when planted in a good, rich loamy soil, with a dry, porous subsoil. If the position is somewhat elevated, and the soil such as I have described, the trees should continue healthy and productive for a great number of years. In common with most other stone fruits, the Cherry succeeds best in a soil containing lime, and where this element is not present naturally it should be added in some form or another. Few other kinds of fruits grown under favourable conditions as orchard trees give such quick returns or are so profitable as the Cherry. When the trees have reached the bearing stage, little labour is required in pruning them; in fact, the less they are pruned the better, for a free use of the pruning knife is one of the chief causes of gumming. After the head of the tree has been formed, all the main branches should be allowed to remain their entire length, removing only those shoots that are produced on the spurs when there is a sufficiency of fruit buds without them. Never shorten a spur unless there is a young growth at its base, or a growth bud, for shoots are not readily developed from the Cherry, as in the case of the Apple, Pear, or Plum. This rule also applies to trained trees growing against walls. When purchasing standard Cherry trees for orchard cultivation select those that have been worked upon the wild Cherry stock. Many trees are grafted on the Mahaleb Plum, but my experience is that trees on the English stock in the majority of instances make a cleaner and freer growth. Standard trees should be planted not closer than 25 to 30 feet apart, or even a greater distance in the case of the stronger-growing varieties. It is not advisable to plant a large number of varieties, for the fewer the better, selecting sorts that suit the soil and locality. For orchard planting the following varieties may be recommended:—*Belle d'Orleans*, yellowish-white and red fruits, a good early variety, ripening at the end of June. *Bigarreau*, large, pale yellow fruit; the tree is hardy, vigorous and free bearing; season, July and August. *Bigarreau Napoleon*, large yellow fruits mottled with red; the tree is a good bearer and makes a good standard; the fruits ripen in August. *Black Heart*, an old but reliable variety; season, July. *Elton*, large pale yellow fruits of good flavour; season, end of July. *Florence*, large yellow fruits with very firm flesh; the tree succeeds best in sheltered positions; season, middle of August. *Kentish*, the red fruits are of a medium size and useful for preserving; season, end of July. *Knight's Early Black*, a large, juicy fruit; the tree is a free grower and prolific bearer; season, early July. *May Duke*, large dark-red fruit, richly flavoured and slightly acid; season, early July. *Noble*, large, reddish-black Cherry, one of the best for market or private uses; season, July. *Windsor*, large, reddish-black fruit, of fine flavour; season, July and August. *White Heart*, pale yellow fruit, of medium size; season, July.

The Morello Cherry, if grown as a standard or half-standard in orchards, may be planted at half the distance recommended for the sweet Cherries, the trees being less vigorous in growth. This variety requires less pruning than any other, the fruit being produced principally upon the shoots of the previous season, and not upon spurs. Particular attention must therefore be paid to preserve and encourage these growths in every part of the tree. When a lateral branch has become extended as far as it can be allowed to go or is beginning to overcrop younger and more suitable growths, it should be cut back to a younger branch near its base, or removed altogether.

MOTILE MECHANISMS IN PLANTS. Dr. J. BRIETLAND FARMER, F.R.S., lecturing on this subject at the Royal Horticultural Society's meeting on the 5th inst., pointed out that motile mechanisms, as seen in plants, could be divided into two groups: 1, those dependent on the presence of living protoplasm; 2, those which were not due to vital action, but to inequality of physical absorption of water. In the latter class some depend on unequal swelling (the so-called hygroscopic movements), others on the result of the cohesive force of water when enclosed in membranes that could be wetted and that are also impervious (or relatively so) to air. The subject matter was illustrated by lantern slides to elucidate the particular examples selected for description. Amongst the special types of mechanism, the following were described:—*Biophytum sensitivum*, with its sensitive hairs; the Rose of Jericho, the peculiar structure of the stem of which accounts for the inrolling of the branches when dry and their spreading when wetted; the Moss peristome, with its hygroscopic teeth. The Fern sporangium and the elaters of liverworts afforded illustrations of the water-cohesion mechanisms. The lecture closed with observations on the general interest of these phenomena in connection with the large biological problems of the meaning of adaptation in living things.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for publication, as well as specimens of plants, etc., must be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent always in the envelope, and should be signed by the writer. If desired, the signature may not be printed, but left as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, and of any notices or notices of interest to be printed under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending news articles should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, DECEMBER 18—

Nat. Chrys. Soc. Executive Com. meet.

TUESDAY, DECEMBER 19—

Nat. Ent. Soc. Com. meet. (no general exhibition).

THURSDAY, DECEMBER 21—Linnean Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich: 53° F.

ACTUAL TEMPERATURES.

LONDON: (H. J. J. J.), December 17 (6 P.M.) Max. 49°; Min. 41°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London (J. J. J. J.), December 17 (10 A.M.): Bar. 29.4; Temp. 47°; Weather Fair.

PROVINCIAL: (H. J. J. J.), December 17 Max. 48 Cambridgeshire; Min. 42 Lincolnshire.

SALES FOR THE ENSUING WEEK.

MONDAY.

Plants, Trees, Shrubs, Bulbs, including Lilliums; Perennials, Palms and Decorative Plants, at 12.30, at Stevens' Auction Rooms, 38, King Street, Covent Garden, W.C.

WEDNESDAY.

Japanese Lilliums, at 2.30; Palms and Plants, at 5, by Protheroe & Morris, at 67 & 64, Cheapside, E.C.

Sir Joseph Hooker, O.M. Sir Joseph Hooker died at his residence at Sunningdale on Sunday, December 10.

His death will be mourned throughout the world of science and in the larger world, wherever there are men to reverence a noble life and to honour splendid achievement. For Hooker was not only the greatest of British botanists; he was one of the great outstanding men of his age. That position he won by the hardest yet surest of ways, that of doing his special work supremely well.

Though he lived far beyond the allotted span of human life, Hooker, the man of science, never grew old. As each new generation of botanists arose, it turned to Hooker as its acknowledged master. The man who had been alive and at work in what seemed to the younger men a remote past was still alive and at work in their midst. The man who led the van of scientific progress in the '50's of last century remained, by right of brain and example, our leader till his death.

The advancing years seemed almost to pass him by, save that they brought him the sacred accompaniments of old age—love, honour, and obedience, troops of friends, till at the age of 94 death surprised him whilst he was yet at work.

Those of us who knew Hooker in his hale, serene old age might well have imagined that his life had been spent in sheltered retirement from the vexations, troubles and perils of the world. Yet to few men, in whatsoever walk of life they be, falls such an eventful career as he chose for himself. Well-nigh three-quarters of a century ago—in 1839—he sailed, a youth of two-and-twenty, with Ross in the "Erebus," and on that famous voyage of the "Erebus" and "Terror" he shared in the hardships and dangers which await the explorer in the bleak Antarctic seas.

Alone he trod the passes and hills of the Himalayas and penetrated whither no white man had gone before. In later years he travelled to Syria, in order to investigate the Cedar groves of Lebanon, and surely none since Solomon had more title to speak "of trees, from the Cedar tree that is in Lebanon, even unto the Hyssop that springeth out of the wall."

Unlike so many journeys the labours of which cease with the home-coming, Hooker's travels involved years of arduous toil after the wonderful harvests of plants which he collected had been garnered in. The working out of his own collections was in itself a herculean task, and beside the plants which he had gathered with his hands, Hooker received countless specimens from his correspondents in the four quarters of the globe.

We have been told by one of his disciples that even in his herbarium Hooker was wont to adopt methods of classification which he had learned to follow in the wilds. The plants to be arranged were strewn upon the floor, and related plants were coaxed gradually by his unerring eye and judgment into their proper groups.

Of the magnitude of Hooker's contributions to systematic botany we speak elsewhere; it suffices here to say that in this domain he was the equal, if not the superior, of his great contemporaries, William Hooker, Bentham, and Lindley.

Hooker's claims to immortal memory in the annals of science rest by no means solely on his contributions to systematic botany. A great observer, the range of his observations in the countries which he visited included geological, geographical and meteorological phenomena. Of them that other great traveller Humboldt pronounced that they are "a perfect treasure of important observations in which a prodigious extent of previous knowledge is brought to bear on every topic and which is marked with great sagacity and moderation in all the views brought forward."

Versatility is the relaxation of genius, and though Hooker was first and last a botanist, his broad sympathies with all domains of natural knowledge gained for him the sobriquet of the "Versatile Hooker" and established him whilst yet a young man in the first rank of men of science.

Yet, remarkable as were Hooker's achievements as a traveller, collector, and observer, they do not complete the tale of his contributions to knowledge. To many of us, at all events, Hooker's most abiding title to lasting memory is his

epoch-making work on the geographical distribution of plants, and the application of that work to the elucidation of the problems of evolution and the origin of species.

Hooker was happy in the moment when he embarked on the "Erebus" and his life's work. Shortly before he sailed with Ross, Darwin had returned from the memorable voyage of the "Beagle." The experienced traveller recognised the high promise of the novice and none better than Darwin could advise Hooker for his journey of exploration. In those days began the acquaintance which ripened into a close and life-long friendship.

There is no doubt that Darwin's attitude of mind towards the "species question" influenced Hooker, and there is also no doubt that Hooker's cautious yet broad judgment proved invaluable to Darwin. Already in his earliest writings Hooker had taken, consciously or unconsciously, the first step away from the dogma of the constancy of species. Similar forms of plants in distant Antarctic lands he attributes not to so many separate acts of creation, but to the isolation—from geographical or climatic causes—of forms which once spread continuously over the whole area. For more than 20 years after his return from his voyage, Darwin—deep and slow, exhausting thought, and hiving knowledge with each studious year—pondered the problem of the *Origin of Species*. At every stage, as he acknowledges, Darwin availed himself of the large stores of knowledge and excellent judgment of his friend Joseph Hooker. Hooker and Lyell it was who prevailed on Darwin to publish jointly with Alfred Russel Wallace the outline sketch of his theories. That sketch was communicated to the Linnean Society in 1858. The review of the *Origin of Species* which most pleased Darwin was that written by Hooker, with Lindley's acquiescence, in the pages of the *Gardeners' Chronicle*. In 1868, when he presided over the Norwich meeting of the British Association, Hooker devoted his presidential address to an exposition and defence of the *Origin of Species*. Thus, both by sober counsel and subtle advocacy, Hooker lent most powerful aid to Darwin. Many years afterwards, in 1908, the conspicuous part which Hooker had played in Darwin's work was recognised officially. At the meeting of the Linnean Society, held to commemorate the 50th anniversary of the communication of the Darwin-Wallace joint paper on natural selection, Hooker attended in person to receive one of the Darwin medals, and delivered—at the age of 91—a vigorous speech recalling the far-off times when the great events were happening.

And through all these eventful years, from pre-Victorian to present Georgian times, Hooker's special systematic and explorational work went on unceasingly. His Antarctic collections were worked out and the *Floras* of the Antarctic, New Zealand, and Tasmania were published. The Indian journey was accomplished, and that classic, *The Himalayan Journal*, was written. Therein is evidence enough that, had Hooker devoted himself to literature,



SIR JOSEPH DALTON HOOKER, O.M.

JUNE, 1817 - DECEMBER, 1911.

he would have achieved no less distinction than he won in science.

Hooker's official connection with Kew began a little more than 50 years ago. After serving for 10 years under his father, William Jackson Hooker, the son succeeded to the Directorship in 1865. In that post his great powers of organisation and his vast knowledge of plants enabled him to add another great reputation to the great reputations which he had already built up. As is well known, Hooker passed through troublous times at Kew, where at one period the hand of dull officialdom was heavy upon him. But Hooker, though never one who could suffer fools gladly, won in the long run. Thanks to the saving sense of the Press and the support of men of science, he emerged victorious from the struggle, and preserved Kew from the worst of evils—the uninformed meddlesomeness of an ill-educated bureaucracy.

Of the honours which fell to Hooker, it is scarcely necessary to speak. He received from the Royal Society the Royal, Copley, and Darwin medals, and attained in 1873 to the highest position open to a British man of science: the presidency of the Royal Society. In 1877 he was created K.C.S.I., and 40 years later, on his 90th birthday, he received the Order of Merit. It is right that the Abbey should offer to receive his ashes side by side with those of our poets and painters, statesmen and warriors. Yet it is more fitting that he should lie beside his father at Kew. His early life, his whole life, was devoted to botany, and it is meet that he should lie in the Mecca of botanical pilgrims.

COTTAGE GARDENS IN SURREY.—The Royal Horticultural Society's Kingston Silver Medal has been awarded to Mr. E. SPOONER, of Witley, for the best kept cottage garden in Surrey. A second Medal, offered for the best kept allotment, was won by Mr. C. AYLING, of Chiddingfold.

WORTHIPFUL COMPANY OF GARDENERS.—In our issue of November 25 we reported that the Court of Aldermen had received a petition from the Gardeners' Company praying for an increase of the levy from 60 to 100, in order that a number of distinguished citizens might be admitted. The petition was referred to the General Purposes Committee for consideration. At a meeting of the Court of Aldermen on December 5 the General Purposes Committee recommended that the proposed increase be granted, and the Court confirmed this recommendation.

BATTERSEA PARK.—At its meeting on December 5 the London County Council adopted the proposal of its Parks and Open Spaces Committee to convert the botanical garden at Battersea Park into an old English garden at an estimated cost of £265. Some particulars of the proposal were published in the *Gardeners' Chronicle* of December 2.

"LE CHRYSANTHEME."—This interesting publication, the official organ of the French Chrysanthemum Society, has now reached the 141st number, and the editor has decided to issue in parts an index to the first 140 numbers. This index will facilitate reference, especially as the paging has been somewhat unusual for a serial publication.

SINGLE FLOWERS ON THE ROSE GLOIRE DE DIJON.—The remarkable behaviour of a Gloire de Dijon Rose in suddenly producing a crop of single flowers forms the subject of a note presented by M. VIOLE to the Académie des Sciences (November 13) and referred to in the *Revue Horticole* (No. 23, December 1, 1911). The Rose is planted in the open, and has been in its present position for about ten years. It is extraordinarily vigorous and floriferous. The heat and drought of the present summer were not without their effect upon the Rose, which produced, during August, fewer and less excellent flowers than during the earlier part of the year. Suddenly, about September 12, all its branches produced a crop of absolutely single Roses, then the curious phase passed, and the same branches bore, some eight days later, than normal, double flowers.

CIDER INDUSTRY.—With a view to restoring the cider industry in Suffolk, the Framingham Agricultural Co-operative Society has purchased a cider press, which will be available for growers in the neighbouring villages.

THE APPLE HARVEST IN U.S.A.—The crop of Apples produced in 1911 in the United States of America is estimated by the French Consul at Chicago as exceeding 20 million barrels, an increase of 6 millions on that of last year.

THE MODIFICATION OF FLOWER COLOUR BY ARTIFICIAL MEANS.—Recent experiments by Mr. A. GAWALOWSKY, *Horteur Journal*, Zettl, lxi, 53 and *Bot. C. B.* 13, No. 45, 1911) show that the addition of sodium orthophosphate to the soil causes the petals of *Rosa centifolia* to assume a deep red to blue-violet colour. Under similar treatment flowers of *R. rubra tinctoria* become of a dark brown-red tint.

DROUGHT AND CORN CROPS.—It would appear from the prices for Corn now ruling that the hot summer has produced at least some good effects. According to *The Standard* the average price of British Wheat, for the three months of the current year—September 1 to November 30—is 32s. 9d. as compared with 30s. 5d. last season; the rise being due to improved quality. British Barley averaged 30s. 10d. as against 24s. 7d., and Oats 19s. 8d. against 16s. 5d., quality again accounting for the rise.

MANURING OF ERICAS.—M. MAX LÖBNER describes in the current number of *Flora Dresden*, p. 80, the results of experiments or the effects of various manures on *Erica gracilis*. As the results of his experiments Max LÖBNER recommends the use of horn shavings or dust and of bonemeal. He finds that good results are obtained by the addition of these manures to the soil used for potting purposes, some time before the plants are potted up. The proportions recommended are for 20 lbs. of potting soil, 1½ ounce of horn meal, and 1 ounce of bonemeal. The smallness of the amounts to be used is to be noted, since larger quantities act deleteriously. The effects of the manure are to be seen both in the vigorous growth of the plant and the good colour of the flowers.

"THE ORCHID WORLD."—The current number of *The Orchid World* maintains the high standard of excellence which previous issues have led us to expect of this excellent periodical. The illustrations include *Vanda Sanderiana* (coloured plate), *Cattleya Her Majesty* and *Calanthe Cooksoniae*. The Orchid collection of J. J. HOLDEN, Esq., of Auburn House, Southampton, is described, and among the articles of interest is the first instalment of an account by Dr. KRONER of an Orchid collector's travels through British Guiana to Brazil.

HYBRID BETWEEN PEACH AND ALMOND.—M. PIERRE PASSY, writing in *Le Jardin* (December 5, 1911), gives a brief account of the branches of hybrids between Peach and Almond which were exhibited at a recent meeting of the French Society of Horticulture. The branches in question were of the second generation. The plant raised from the original cross exists in the nursery of M. BEAUMONT at Bédouville, and is a very remarkable tree. It has been flowered prolifically for years, the hybrid did not produce fruits till 1903. In that year it yielded plenty of good seed, and from that seed some 25 plants of the second generation were raised and still exist.

"LA VIE AGRICOLE ET RURALE."—We have received the first number of a new French weekly review which bears the above title, and extend our best wishes for success to our young contemporary. The review is illustrated and contains articles on the extension of meadow land in central France, horse-breeding, Mushrooms, bees, and many other subjects of interest to farmers. A special page is devoted to law notes bearing on agricultural matters. The subscription price is for France 12 f., abroad 15 f., and the editorial committee contains the names of many well-known agriculturists.

NEW HYBRID LILACS.—By crossing the North Chinese species *Syringa Giralddii*, which flowers about a fortnight earlier than other Lilacs, with early varieties of Lilac, Messrs. LEMOINE ET FILS (Nancy) have produced several new varieties, which have greater precocity than the Chinese species. According to the *Revue Horticole*, No. 23, December 1, 1911, the hybrids grow luxuriantly and form large bushes. Two which will be put in commerce this year are *Lamartine*, which has single, mauve flowers, borne in large panicles, and *Mirabeau*, with very large, single rosy-lilac mauve flowers, which open about April 25.

M. VIGER.—At the end of the present month M. VIGER's appointment as President of the National Horticultural Society of France comes to an end, but we are glad to announce that he has acceded to the request of his brother officers and colleagues to continue in office. The National Horticultural Society of France in particular, and French horticulture in general, could ill-afford to do without this sympathetic friend of gardening in its broadest sense.

THE PARIS SHOW.—Our contemporary, *La Vie à la Campagne*, edited so ably by our confrère, M. ALBERT MAUMÉNE, gives an excellent account, in its current issue, of the Paris autumn show recently held by the National Horticultural Society of France. A series of interesting photographic illustrations accompanies the report. Among them is one of Jacqueline Ochs, the new Japanese *Chrysanthemum*, staged by Mr. THOS. STEVENSON at that show, and an appreciative commentary on his fine exhibit is also given.

PROPOSED NATIONAL DIPLOMA IN HORTICULTURE.—The Council of the Royal Horticultural Society have requested the following gentlemen to be so kind as to act as a committee to inquire into the desirability of establishing a national diploma in horticulture, and if it is thought desirable, to recommend what steps should be taken for this purpose: W. WILKS, Secretary R.H.S.; the Right Hon. A. H. DYKE ACLAND, Mr. W. BATESON, M.A., F.R.S., Mr. E. A. BOWLES, M.A., Mr. F. J. CHITTENDEN, F.L.S., Prof. J. B. FARMER, D.Sc., F.R.S., Mr. C. R. FIELDER, V.M.H., Mr. W. HALES, Mr. J. HUDSON, V.M.H., Prof. KEEBLE, M.A., Sc.D., Sir DANIEL MORRIS, K.C.M.G., V.M.H., Lieut.-Col. D. PRAIN, M.A., F.R.S., Mr. H. J. VEITCH, V.M.H., Mr. WALTER P. WRIGHT.

AGRICULTURAL RETURNS: GREAT BRITAIN.

The effects of the drought of the past summer are illustrated in eloquent fashion by the preliminary statement of *Produce of Crops*, issued by the Board of Agriculture. The statement shows the estimated total produce and yield per acre of the Potato and root crops in the year 1911, with comparisons for 1910. Though the average yield of Potatoes per acre in 1911 is a little higher than that of the previous year (6.70 tons as against 6.44), the averages for root crops are very considerably below, not only those of 1910, but also those of the last ten years. Thus, for Turnips and Swedes, though the acreage in 1911 was much the same as in 1910, the yield this year is 16,397,602 tons as against 25,695,018 tons in 1910; a shortage of upwards of nine million tons. England appears to have suffered more severely than either Scotland or Wales; for whereas the yield per acre in 1911, as compared with 1910, falls from 18.4 to 14.2 in Scotland, and from 17.1 to 14.3 in Wales, it decreases from 15.5 to only 8.7 in England. The severity of the drought in England is further illustrated by the shrinkage in the yield of Mangolds. These "roots of scarcity" have done well on the average in both Wales and Scotland, but in England the yield per acre is so little as 16.51 tons as against 21.2 tons in 1910, and the ten years' average of 20.1.

PUBLICATIONS [RECEIVED].—*Proceedings of the Academy of Natural Sciences of Philadelphia*, vol. lxiii., part. II., 1911. (Philadelphia: Academy of Natural Sciences.)—*U.S. Department of Agriculture*. Bureau of Entomology. Bulletins: Papers on Deciduous Fruit Insects and Insecticides: The California Peach Borer, by Dudley Moulton; Papers on Insects affecting Stored Products: Carbon Tetrachloride as a Substitute for Carbon Bisulphide in Fumigation against Insects, by F. H. Chittenden and C. H. Popenoe. Bureau of Plant Industry. Circulars: Forage Crops for the Sand-hill Section of Nebraska, by H. N. Vinall; The Picking and Handling of Peanuts, by W. R. Beattie; Promising New Fruits, by William A. Taylor; Arrangement of Parts in the Cotton Plant, by O. F. Cook and Rowland M. Meade (Washington: Government Printing Office).—*The University of Nebraska*. Twenty-fourth annual report of the Agricultural Experiment Station of Nebraska. Bulletins: Cost of Growing Crops in Nebraska, by C. W. Fuglesy. Catch Crops for Hay and Pasture, by E. G. Montgomery; How to Combat the Melon Aphid, by M. H. Swenk; Growing Hogs in Nebraska, by W. P. Snyder and E. A. Burnett. (Lincoln, Nebraska, U.S.A.: Agricultural Experiment Station.)—*International Institute of Agriculture*. Bulletin of the Bureau of Agricultural Intelligence and of Plant-diseases and Bibliographie Hebdomadaire. (Rome: International Institute of Agriculture.)

CAMPANULA LACTIFLORA.

THE accompanying illustration (fig. 176) is from a photograph taken here last July, and shows on the left-hand side the edge of a colony of *Campanula lactiflora* Bieb. In the foreground on the other side are a few plants of the same species at the edge of the park, a position in which self-sown seedlings often appear, doubtless owing to the seeds being washed or blown into small plants edging the path. The main group which is not shown covers a level space in the centre of my rock-garden, which is mainly devoted to bulbous plants and the Dwarf Almond. *Campanulas* such as *persicifolia*, *glomerata* and *Hostii* are encouraged to grow there in a semi-wild manner where they like, to carry on the flowering season after the bulbs are over. I planted three seedlings of *C. lactiflora*, and I feel sure, if anyone had foretold that their offspring would take possession of this level space and also place sentinels along the entire length of the main path, I should have at once removed the three

innocent-looking babes. But as the invasion was so gradual and the effect of the tall spires of blossom is so beautiful each July, I hope they will long continue to flourish. By removing the growing points of young shoots, one can regulate the height of the masses of flowers, and I find a good effect is produced by shortening the stem nearest the path, and by doing this at different times a slight continuation of the flowering period can be obtained, but as a rule those shortened before mid-June flower at the same time as those untouched. In the illustration, shortened stems may be seen on either side, and one is very noticeable on the left hand. They consist almost entirely of

good gardeners have told me that either the blue or the white forms never seed with them, and they possess only one plant of the colour they naturally wish to get more of and which is sterile with them. Is it possible that the pure white and really blue forms are each fertile with pollen from a plant of their own colour form and sterile to that of the other colour form? Has anyone a single plant of each form planted near each other and no others within easy distance, and has he observed whether either plant bears good seed? If so, I should be very grateful for information, and still more so for a pinch of the resulting seed or a seedling or two.

This colour difference has been the cause of



[Photograph by J. A. James.]

FIG. 176.—*CAMPANULA LACTIFLORA* IN MR. BOWLES'S GARDEN AT WALTHAM CROSS.

the pure-white form, with a small number of the faintly-blue-tinted one among them, but very rarely have any appeared that could be rightly called blue. In another part of the rock-garden I have a group of the blue form, which also seeds freely, and all the seedlings thus far have been as blue as their parents.

The existence of these two races has given rise to some erroneous notions as to the nomenclature, and I take this opportunity to state the facts so far as I have been able to collect them.

In this garden, where either form is grown in a group, they seed freely, but wherever I have planted a solitary specimen at a distance of 100 yards from another, good seed is very rarely produced. This may account for the fact that many

Boissier's name of *C. celtidifolia* being applied to the blue form. It is true that he described a plant under that name in Boissier's *Diagnoses Plantarum Orientalium*, ser. ii., vol. iii., p. 111. He there writes "*Corollā azurā*," and he must have had poor material before him, as he leaves the radical leaves and capsules undescribed, and writes, "*caulis 2-2½ pedalis*," and further, "*Quoad faciem refert C. rhomboidalem caule tamen crassiori densiusque folioso*." I trace to this description the prevalent notion that there exists a *C. celtidifolia* that is blue flowered and much dwarfier than *C. lactiflora*. I find here the better the soil the taller any of the forms will grow, and 6 feet is about the usual height of a healthy, well-established specimen of either

colour. But the great point, which seems to have been overlooked, is that Boissier afterwards described the plant in the *Flora Orientalis*, vol. iii., p. 935, under the name of *C. lactiflora*, Bieb., giving *C. celtidifolia*, Boiss., *Diagn.*, ii., 3, p. 111, among the synonyms, and stating "corollæ . . . albidæ vel cœruleæ." Bieberstein seems to have met with the pale forms only and writes, "corollis . . . lacteis aut dilutissime cœruleis." So unlike other *Campanulas* of which blue and white forms are known, the white one is the type.

There is a good figure of the pure white form in the *Bot. Mag.*, t. 1973, but although I have observed seedlings here with a slight rosy tint on the unopened buds, I have never seen it so marked as in the colouring of this plate, nor have I ever seen the calyx lobes so red. The figure in *Bot. Reg.*, t. 241, represents the "very dilute blue" one.

Both blue and white forms sometimes produce seedlings with abnormally-formed corollas, divided to the base in the same manner as also happens with *C. rotundifolia*, and as De Candolle has figured on Pl. 2 of his *Monograph of the Campanulas* in *C. medium*, calling the form poly-petala. It is rather curious that in *C. lactiflora* these forms can be easily recognised by the correlated character of narrow lanceolate leaves, and I have never seen one of them exceed 2 feet in height, and generally the stems are thin and weak and inclined to bend over. Mr. Wolley-Dod recorded this form as of frequent occurrence at Edge Hall. E. J. BENTLEY, *Waltham Cross*.

NOTICES OF BOOKS.

AMONG THE HILLS.*

MR. FARRER is well known to readers of the *Gardeners' Chronicle*, not less perhaps on account of his valuable contributions to the literature of Alpine plants, than as one who possesses a wide, first-hand knowledge of the native haunts of the plants themselves. His most recent book, entitled, *Among the Hills*, will be sure of a welcome, and we can confidently say that everyone who cares about the mountains and their floral children will do well to read it. The second title of the work—"A book of joy in high places," aptly describes the vein in which it is written, and if the style is whimsical, and here and there even extravagant—well, we have learned to expect that from Mr. Farrer, and would miss it if we did not find it.

The book is a real contribution to the subject. The author has the faculty of making his reader feel and enjoy with him the subtle but very real influence of the mountains, whilst the man who wants to realise the natural conditions under which the plants thrive in their wild habitats will find here a mine of information. Critical notes are not wanting, and the author discusses the vexed question of species in some of the more troublesome Saxifragas. These variable forms, often constant in individual localities, are the despair of the conscientious horticulturist and botanist alike—but they present a fine field for experimental study. The *Lantosca* series seem to be nearly, if not quite, as bad as the *Caesia-Tirolensis-squarrosa* set of the Eastern Alps.

Mr. Farrer has won for himself a unique place among writers on Alpine plants, and his reputation as an observer and as a painter of word pictures of the plants themselves and of their habitats will be undoubtedly enhanced by this his latest volume. The gift of discriminating enthusiasm, which is his peculiar secret, will awaken many a sympathetic echo in the minds of those who, sharing his love of Alpines, yet find their less exuberant vocabulary incapable of expressing adequately the feelings which they cherish for their favourites. As all who know his

works recognise, Mr. Farrer does not write round his subject, but contrives to impart a wealth of solid information, whilst dazzling us with pictures, and his style is as a setting of fine workmanship which at once secures and enhances the gems contained in it.

ORCHID GATHERING IN THE EAST.

It is difficult to imagine any class of reader who would not be interested and delighted with Mrs. Talbot-Clifton's cleverly-written book *Pilgrimages to the Isles of Paradise*. Graphic descriptions of strange lands, and of the manners and customs of the little-known natives of the Far East, blended with the personal experiences of the writer and her husband, make up a work

every now and then into the wild regions off the track. The authoress frequently mixed in the daily life of the natives, and, being a keen observer, she gleaned many interesting facts concerning the religious beliefs and folk-lore of the people. Orchid hunting, however, was always made the chief object, and the book abounds in tales of absorbing interest of the experiences of the travellers.

A map of the route is given, and 54 fine illustrations taken from photographs, many of which were taken by Mr. and Mrs. Talbot-Clifton themselves. Part of the work consists of the diary of the authoress, written while on her travels; it is not in any sense of the word a scientific or cultural work on Orchids, but is pleasant and in-



FIG. 177. THE DENT D'AUDIN AND PYRAMID MOUNTAIN.

FROM "AMONG THE HILLS."

of absorbing interest even to those not especially interested in Orchid culture.

The British horticulturist associates the names of Mr. and Mrs. Talbot-Clifton with their beautiful gardens at Lytham Hall, and the very interesting collection of Orchids in cultivation there. It was the love of Orchids, and the desire to see them in their native haunts, that induced Mrs. Talbot-Clifton to undertake the journey she has described so well, and she achieved the distinction of being the only European lady to collect the rare *Phalenopsis tetraspis*. Burma, from the Chinese frontier to the Southern border by Siam, the Andaman Convict Settlement, the Nicobar Islands, the Malay Peninsula, Java, were all visited in turn, a detour being made

structive reading for everyone, and well worth more than one perusal.

In any future edition of the series which occur in the spelling of the plant names should be corrected.

FLORAS OF FRANCE, SWITZERLAND, AND BELGIUM.*

We have received Fascicle 1 of this useful work by Professor Gaston Bonnier, published under the direction of the Minister of Public Instruction. It is provided with a large number of coloured illustrations, accurately representing the plants enumerated. The first issue deals with *Ranunculaceæ*, with *Clematis*, *Thalictrum*, and *Anemone*, and contains five plates illustrating the several members of these genera.

* *Flores Complètes de France, Suisse, et Belgique*. E. Oudin, Paris.

* *Among the Hills*. A book of joy in high places. By E. J. Bentley. London: Housley Bros. 1910. 10s. 6d. net.

* *Pilgrimages to the Isles of Paradise*. Orchid Gathering in the East. By Mrs. Talbot-Clifton. Jersey: S. 54. 10s. 6d. net. 12s. 6d. net. London: John Long, Ltd.

The descriptions (in French) are very clear and easily understood. The work is one which will be useful to the student, the botanist, the gardener, and all who wish to become familiar with the plants they may find in their country walks.

CHRYSANTHEMUMS.

NEW JAPANESE VARIETIES.

AUTUMN has come and gone, and has left us the usual batch of new varieties in the different sections—some of real merit, and some of indifferent quality. It is a great pity that more discrimination is not shown by dealers on the points of quality possessed by new varieties. I am, of course, prepared to admit that the views of critics differ in this matter; but at present it is left to the cultivator to determine which varieties are worthy of an extended trial.

The list of novelties for this season cannot be said to contain anything particularly striking, though it embraces some desirable varieties in the colour sections. We are still waiting for a really good white of the type of Mme. Carnot, and for a yellow flower with the characteristics of F. S. Vallis, or even Bessie Godfrey, neither of which is so well displayed now as it was a few years ago. In the section for bright colour, it is always pleasing to note the presence of a variety of the latter type; it is not easy to secure, and in a list of my own making I should always give it the preference.

J. SURRY (Mileham, F.C.C., N.C.S.) is a fine flower, the full-sized blooms of which measure 10 inches in diameter. The flower has a full centre, and the long florets droop in a very graceful manner. The colour of the surface is a rich crimson, but it shows very little of the gold reverse, a common fault in very many varieties. However, I look upon this variety as one of the most promising.

MISS ROOPE shows a tendency towards the Japanese incurved. It is a full, solid flower, with florets incurved at the points; the colour is an intense yellow, and the bloom measures 9 inches across.

MRS. J. H. COCKEN will take a leading place among yellow varieties; it produces blooms as deep in colour as The Hon. Mrs. Lopes, and the florets are even clearer and brighter than that well-known variety. They are long, of medium width, with a slight curl at the tips.

MISS BEATRICE HOAR.—This is another variety of note which is of an intense crimson colour, with a chestnut reverse. The florets are of medium width, with a slight curl at the tips, and have an elegant droop.

KING EDWARD V. is the same as The Hon. Mrs. Dalgety as shown by Mr. Baxter at Portsmouth. It will be known in future by the first-named title, and is likely to do credit to the raiser (Mr. Godfrey). The colour of the long, drooping florets is an improvement upon that of Master David; it is brighter and clearer, a distinct point in favour of the novelty.

KARA DOW is not exactly a novelty, but is not so well known as its merits deserve. When properly grown it is an improvement on J. H. Silsbury; the colour is a rich chestnut, with golden reverse.

MISS ELSIE DAVIS.—This variety is a thick, solid flower, with short florets of a semi-reflexed character; the colour is purple-lilac, with an occasional silver tip to the florets. It reminds me of a well-proportioned bloom of Etoile de Lyon.

MISS RODNELL is the name of a very attractive variety with flowers 9 inches in diameter; the florets are long, wide, and drooping, white, with flushed edges and purple stripes.

MRS. GILBERT DRABBLE.—This variety should take a prominent place among white-flowered sorts. The blooms measure 9 inches across, and the long florets have a distinct upward curl.

QUEENIE CHANDLER has twisted, drooping florets of a soft primrose yellow. This is a chaste-looking flower, which should be much more popular than it is.

DECEMBER GOLD was introduced as a decorative variety on account of its fine colour, an intense orange-yellow. Its medium-sized florets droop and curl at the tips; it is a full, solid bloom, well suited for the front row of an exhibition stand. Early in November I saw some blooms of this variety measuring 8 inches across, and of almost equal depth.

RED CHIEF has now been named "Thomas Lunt," and will in future be known by the latter title. It is of a rich crimson colour, with gold reverse on the broad florets.

JAPAN has long, wide, drooping florets, loosely incurved. The colour is rich yellow, with an orange suffusion, and the flower is exceedingly attractive. E. Molynae.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

MECONOPSIS INTEGRIFOLIA (see p. 378).

With regard to the difficulty in raising seedlings of *Meconopsis integrifolia*, it is not improbable that imperfect fertilisation plays a most important part. My experience with one of the earliest packets of seeds received may serve to illustrate this point. The seeds were sown with care, and three weeks later there was evidence of an abundant crop of seedlings. But only three of the seedlings grew, and I had the tantalising experience of seeing the greater number remain stationary for a while and then perish. Observing their lack of progress, I had previously lifted some, and, more closely examining them by the aid of a magnifying glass, found that the cotyledons appeared unable to get free of the integuments. Whether this was due to weakness (it did not appear to be so), to indifferent fertilisation, or to the hardness of the seed-coats I am unable to say. I was at the time rather inclined to think that it was due to the hard seed-coats, and intend at some future sowing to test the point by soaking some of the seeds in warm water, sowing others as usual. The same difficulty is experienced with seeds of M. Wallichii. Sowing the seeds in a cold-frame treatment has resulted, I believe, in the loss of quantities of good seeds. A quick vegetation of the seeds I regard as well-nigh essential, and they are best raised in a rather moist greenhouse atmosphere of about 45°. E. H. Jenkins.

CHRYSANTHEMUM REMINISCENCES.—It is more than a dozen years since I last attended the great autumn exhibition of the National Chrysanthemum Society, so, although in the interim I had seen many good shows in the provinces, I looked forward with great interest to the recent display at the Crystal Palace. It is difficult to take the mind and memory back over a decade and, further, "comparisons are odious." But, whilst I was at the Chrysanthemum Show, the inevitable question forced itself: Is the Chrysanthemum of to-day superior to that of ten years ago? This is one of the questions which cannot fairly be answered with a plain *yes* or *no*. In sheer point of size the old-time flowers decidedly have the advantage, for there was nothing at the Crystal Palace this year which could for a moment be compared with the gigantic blooms of Mme. Carnot, Viviani Morel and Etoile de Lyon, which we used to grow. So it is evident that if we find any improvement, it must be in the quality of the blooms, and here there certainly is an improvement, but who shall say how great an improvement? No one could have more admired the lovely bloom of December Gold, which Mr. Davis exhibited so grandly, than I did, but then a dozen years ago we had good, rich-yellow blooms, and may not part of the charm of December Gold be due rather to the skill of the cultivator than to any inherent beauty of the flower itself? In any case I think we may safely claim that the Japanese Chrysanthemum is, on the whole, more refined and of better colour than it was. The incurved blooms have had their day, and possess but little real beauty. There is a cer-

tain amount of colour value in such rich yellows as Buttercup, Emblème Poitevine and Godfrey's Eclipse, whilst a few varieties, J. Wynn and Miss Coca Stoop, for instance, have a desirable shade of silvery-pink, which finds many admirers. The improvement in Chrysanthemums becomes evident when we consider the decorative types. In the newer races of Japanese flowers and the single varieties there is an immense improvement. These have quite taken the place of the Pompons and Anemone-flowered Chrysanthemums, which formerly were the only really decorative varieties. Where are what one may, perhaps, call the "freaks" of the Chrysanthemum family, the "hairy" varieties and the "spidery" flowers with their frivolous names? These seem to be almost as extinct as the dodo. The nearest approach to them were blooms of Mignonette and Honeysuckle, shown by Messrs. Cannell & Sons, but these varieties have much more beauty than the older freaks possessed. Honeysuckle, a Swanley seedling, has petals very strongly suggestive of the wild hedge-row climber from which it takes its name. Mignonette with its fluffy balls of yellow is very attractive. Little as one may regret the passing of the Incurved varieties, the presence of Mrs. George Rundle in Messrs. Cannell's stand struck a responsive chord. A champion grower of the 80's beheld the blooms with retrospective interest. J. C. Barthol.

THE REMOVAL OF TREE STUMPS (see p. 411).

—The removal of tree stumps by blasting described in last week's issue reminds me of a method I have seen employed in New Zealand which needs no expert, is attended by no danger, and would probably be cheaper than the American method. Tree stumps there on the settlers' clearings are generally 4 feet to 5 feet high—the height of a man's shoulders swinging an axe. Three to five, or more, holes, depending on the size of the stump, are bored with a 1-inch auger, starting about 2 feet from the ground and slanting down from one side in a direction towards the centre of the large main roots on the opposite side where these enter the ground. The holes are then filled with saltpetre (nitre) and roughly plugged up. This is done in the autumn or early winter. In spring or early summer, as soon as there is a spell of dry weather, the plugs are removed and the saltpetre is found to be absorbed, having been carried into the wood by the receding sap or by the winter moisture. The holes are then filled up with kerosene (paraffin) oil, and more is poured on the top of the stump. The tops and brushwood, which have been left on the ground, are piled up against the stump, and it is set alight. After the upper part of the stump is burnt the base and large roots smoulder on for some time, even for weeks, and to a considerable distance underground. I do not know how far this method is reliable, that is, whether the saltpetre is always certain of being carried down sufficiently into the roots to ensure them being completely burnt out, nor whether it is more suitable for some kinds of trees than others. I have always seen a few stumps left unconsumed. On the other hand, I have more than once had unpleasant experience of the distance from the stumps to which the roots will smoulder away underground. The average cost, I should think, would not be more than 2s. per stump. A. J. Bliss.

GIVE THE JOURNEYMAN A CHANCE!—Mr.

Ward, on page 399, considers that a *Royal Journeyman* is expecting too much when he asks to be allowed to take part in the pruning of vines, Peaches, and other indoor trees. I consider that a journeyman should be given every opportunity to assist in these operations. Mr. Ward goes on to say that a head gardener cannot be expected to risk the symmetry and general welfare of his vines and Peaches by entrusting the pruning to a novice. I am not suggesting that journeymen should do the pruning alone, but I do think that they should assist the gardener or foreman in this work and thus obtain the opportunity of learning the methods of pruning. I am now speaking of journeymen gardeners who take an interest in their work and who want to get on and do their best. It would encourage the young men if they knew that the head gardener had confidence in them and had set them tasks under his guidance that required skill and care. H. Mason.

THE LATE JAMES DOUGLAS.—As one who knew this great horticulturist for some forty-six years may I be allowed to add "a little peggle to the cairn" of justly deserved praise of one who shed lustre on the art of gardening? It was in the memorable year of the great International Horticultural Exhibition at South Kensington in 1866, that I first became acquainted with Douglas, and 1866 was the year in which he won the Royal Botanic Society's Silver-gilt Medal for the best Pineapple; but it was as Secretary and Treasurer of the National Auricula and National Carnation and Picotee Society's exhibitions that I was brought into close touch with him, and such other eminent florists as Charles Turner, E. S. Dodwell, Samuel Barlow, Ben Simonite, and the Rev. F. D. Horner, who has touched no flower that he has not adorned. Shakespeare has well said that the fairest flowers of the garden are our Carnations. Turner, Douglas, Dodwell and Simonite never allowed their love of the Carnation to die, even in degenerate days when it was neglected, and to them we owe many of the beautiful varieties now so largely grown. A revival of the love of the Auricula has taken place, thanks in a great measure to James Douglas. In Phyllis Douglas (Alpine) he has given us what may well be described as the most perfect flower in its class yet raised. It received an Award of Merit from the Floral Committee of the Royal Horticultural Society in 1910. A reference to a new variety also compels attention to an old sort, Urania, for which Mr. Douglas received a First-class Certificate twenty years ago. Would it not be a graceful and appropriate memorial to James Douglas for gardeners to subscribe such a sum to the Royal Gardeners' Orphan Fund as would maintain a child perpetually on the funds, to be known as the "James Douglas Memorial"? J. B.

MARKET GARDENERS' IMPROVEMENTS.—

Fresham and Pershore market-gardeners are much perturbed by the judgment of the High Court in the case of Kedwell v. Flint (see p.), in which an outgoing tenant claimed compensation under the retrospective sub-section of the Agricultural Holdings (Consolidation) Act of 1908, which incorporates the Market Gardeners' Act, for improvements carried out some years ago. The tenant, a widow who succeeded to her late husband's tenancy, was non-suited on the ground that she had no retrospective claim for improvements, because, under a definition in the Agricultural Holdings Act, 1883, of "a contract of tenancy current at the commencement of this Act," read by the judges into the Market Gardeners' Act as incorporated in the Consolidation Act, such a contract is deemed to continue only up to the earliest day after the commencement of 1896, on which it could be determined by a notice served by either landlord or tenant on the other. In the case of a yearly tenant with a Michaelmas entry that earliest day would be Michaelmas, 1898, and the Court decided that after that date a yearly contract of tenancy, however long ago it was actually made, would be deemed to be one commencing after January 1, 1896, under which no retrospective claim for market-gardeners' improvements would be valid. Of course, this disability was not contemplated by Parliament when the Market Gardeners' Act was passed, for its effect is that no yearly tenant could claim for such market-garden improvements as fruit-planting carried out before January 1, 1896, unless the claim were made between that date and the end of a year from either the next Lady Day or the next Michaelmas Day following, according to the date of entry. But the most curious point is that the definition of "a contract of tenancy current at the commencement of this Act," under which the judges non-suited Mrs. Kedwell, was not incorporated in the Consolidation Act with the rest of the Agricultural Holdings Act, 1883, in which it appeared, and the latter was repealed by the former. It follows that the judges non-suited Mrs. Kedwell on a definition which is obsolete. However, they could have non-suited her much more simply by a proviso to the retrospective sub-section of the Consolidation Act of 1908, inserted by the House of Lords annulling the claim of any yearly tenant to improvements made before January 1, 1896. This is the second retrospective section which has been annulled in the law courts, the first having been annihilated through an astounding misinterpretation of its wording in the case of Smith v. Callender in 1901. As the law now stands, no

yearly tenant has any claim for improvements made before 1896; nor has he any claim for such improvements as fruit-planting, for example, made since that date, unless he and his landlord agreed in writing that the holding was to be treated as a market-garden, or unless his landlord has given his consent to a named improvement included in the first schedule of the Act of 1908 as one of those for which the consent of the landlord is required. A. Southern Grower.

CELERY DISEASE.—Growers of Celery who have been and are troubled with the Celery disease will find the present correspondence in these columns of much use. I will not altogether dispute the contention that the disease is introduced by means of tainted seed (see p. 399), but how did the seed get tainted if the plants from which seed was saved were not first affected? It seems almost the old query over again as to which came first, the hen or the egg? Mr. Calthorpe says that the director of the R.H.S. laboratory, in his booklet, writes: "Wild Celery seems 'not' to be attacked by this disease," which is very likely, and somewhat strengthens my contention, as it is very unlikely that seed would be saved from wild Celery. I still think that some error in cultivation, manure, or soil, or both, combined with suitable climatic conditions for the spread of the fungus, are the reasons for its appearance year after year. There are myriads of spores and germs of many kinds always with us, awaiting suitable conditions for development. The Potato disease does not appear every year. I think if seed was principally to blame, the disease would be far more prevalent than it is, and if seed were mainly to blame, is it not strange that the disease has not appeared with Mr. Calthorpe before, whilst other growers have been troubled with it? It is certainly strange that Mr. Calthorpe's first trouble with this disease should happen when he used pig-manure for the first time (see p. 399). Mr. Slaughter, writing on p. 419, states that he uses only pig-manure (and, by the way, his experience, as recorded in his note, of manured plants affected, and unmanured plants free from disease, is the same, practically, as mine, p. 341). Since my first letter appeared, I have had two or three private letters from gardeners telling me that their plants have suffered from the disease, and that they have used pig-manure. Pig-manure may cause a certain growth in the Celery, which favours the development of the disease. Mr. Smith (p. 419) uses horse-manure and nitrates. According to Thompson's *Gardeners' Assistant*, 1859 edition, pig-dung contains more nitrogen than either horse or cow-dung; and nitrates supply extra nitrogen, which may mean that too much nitrogen may, in some way, cause suitable conditions for the development of the disease. It may be possible to give too much manure to Celery, that is why I have given less manure to my plants since they were affected with the disease in 1907. With regard to spraying with the Bordeaux mixture, I do not think any danger is to be feared. I consulted a chemist on this point, and he assured me that he would have no hesitation in eating Celery a day or two after being sprayed with the mixture; and I can assure Mr. Smith that the spraying in no way affects the taste of the Celery. J. Jacques, Bryanston Gardens, Blandford.

—My first experience with this disease occurred last year, and when first noticed infested leaves were removed and burnt. The plants were also frequently sprayed with a solution of sulphide of potassium, and at intervals dusted with lime and sulphur, with little or no effect. After reading up on the subject I found that I may possibly have bought the fungus with the seed, so this season special and early observations were made, with the result that I found perithecia on seedling Celery plants, and these were especially numerous on the variety Sulham Prize. I presume the seed-coat would form a nidus for resting spores. If so, would it be possible before sowing to treat seeds with some process that would destroy the fruits of the fungus, without doing harm to the seed? This is a case in which immediate steps should be taken to try and stamp out the disease. Unlike other fungi, it seems to resist ordinary sprayings and dustings. G. H. H. W.

THE SUMMERS OF 1906 AND 1911.—The summer which practically came to an end on September 12 will long be remembered as the hottest and one of the driest that has been known in this country since reliable records have been kept. Yet in this locality, at all events, the effect, both on vegetation and the water supply, has been far less injurious than could have been expected, considering the tropical heat of the 74 days from July 1 to September 12, with the shade temperature over 80° on 26 days, a mean maximum of 78°, and a rainfall of only 1.60 in. Coppices cut down last winter and most kinds of Roses (not watered) have made more growth than I can remember ever to have seen, and the only shrubs or garden flowers that occur to me as having wanted water are Rhododendrons, Spiræas, Phloxes, and Lobelias. A Penzance Briar grown as a pillar Rose made an aggregate growth upon nine shoots amounting to 51 feet. And, best test of all, the two hydraulic rams, that provide the house with water, and are supplied from a spring hard by, have had an ample supply throughout. Let us compare this with the summer of 1906. In that year I find in my diary on September 11 that "the drought is getting very serious; there has only been water enough to work one ram for the last fortnight," and—on the 13th—that about 20 yds. of a white Thorn hedge "appeared to be dead from the drought." That hedge has remained perfectly green all this summer. It is clear, therefore, that the drought was more severe in 1906 than this year, though in the former the shaded thermometer never touched 80° till August 31, after which there were three days in September over 80° but under 85°, making four in all for the summer against 26 in 1911. What, then, is the cause of this apparent anomaly? It is not to be found in the rainfall of the summer, or even of the nine months ending June 30, as will be seen by the following figures:—

RAINFALL					
Oct. to Dec., 1905	6.03 in.	1910	7.79 in.		
Jan. to June, 1906	11.57 in.	1911	10.35 in.		
July 1 to Sept. 12, 1906	1.57 in.	1911	1.60 in.		
		1917 in.	19.74 in.		
The difference of .57 in. (all in 1910) in favour of this year is not enough to balance its far higher temperature, so we must go farther back for an explanation of the above phenomena. This will be found in a comparison of the total rainfall of the two years preceding each of the above, viz.:—					
1904	23.29 in.	1909	31.04 in.		
1905	23.62 in.	1910	27.09 in.		
	46.91 in.		58.13 in.		

So that 1911 started with a balance of 11.22 in., or, say roughly, 1,100 tons of rain per acre in its favour. In conclusion I may mention that all the data given relate to one piece of land of less than 20 acres (thus ensuring their accurate correlation), and are offered as a contribution to the study of that much neglected, but to farmers and gardeners most important, branch of science, local meteorology. Also, that the thermometers used have the Kew correction and are in a Stevenson screen, and that I have had nearly 40 years' experience in recording. Such an example of the inability of high solar temperature seriously to affect the water supply beneath the earth's surface is rarely to be met with. Alfred O. Walker, F.L.S.

COAL OIL FOR CHRYSANTHEMUMS.—It may interest your readers to know that I feed my Chrysanthemums with gas tar (or coal oil). I will try and explain why and how I do it. Five years ago there was upset a quantity of gas tar on the manure heap, or it might have been thrown there. This was melted into a thin liquid by the hot manure, and it found its way into the tank where we get our manure water to feed the Chrysanthemums and other plants. At first I did not know that this gas tar was in the water until I saw the tar on the soil at the top of the pots; then, of course, I was afraid that damage to the plants would result, but I saw no bad results. On the contrary many young roots could be seen at the top of the pots, and I noticed, further, that the plants were vigorous and the leaves were a darker green. I decided to give them a further quantity of this liquid tar manure, and since the first year, I pour gas tar on

the manure heap (when the manure is hot) so as to melt the tar, and I am not afraid of using it. I am sure the flowers are brighter and of greater substance, the foliage is of a darker green, and the plants generally are more vigorous. I am no chemist, but I feel sure that by accident I have found out a good manure for plants. I might say here that I won 1st prize and silver cup for groups of large-flowered *Chrysanthemums*, also 1st prize for a group of single-flowered *Chrysanthemums* at Stockport on November 17 and 18 last. These plants were fed with manure-water where gas or coal tar was added. *Jas. Atkinson.*

PROPOSED BRITISH GARDENERS' RECEPTION AND DINNER. Kindly grant me a space in your columns on behalf of the members of the Gardeners' Dinner Committee of 1903, to inform your readers that, assuming a favourable response be made, it is proposed to organise in connection with the Royal International Horticultural Exhibition of May next a similar reception and dinner to that held in 1903, and which resulted in a very remarkable success. The members of the above-named committee have recently met for consultation, and have, with a view to obtaining, if possible, some expressions of opinion from the gardeners of the kingdom, requested me, on their behalf, to communicate with you and thus inform your readers of what is proposed. I need hardly say that only in the case of a favourable response from gardeners would arrangements for the dinner be proceeded with. Whilst it is known that great receptions, conferences, and banquets will be arranged by the Exhibition authorities, the council of the Royal Horticultural Society and other distinguished bodies, these functions will be chiefly provided in the interests of visitors from all parts of the world. The Gardeners' Dinner Committee therefore hold that the British gardener should not be overlooked, and hence have put forward the dinner proposal for May next, as mentioned. If the date for such dinner be fixed for the first week of the Exhibition, it must be so late as Saturday, May 25, seeing that preceding days are fully occupied with important functions. Admission to the Exhibition will be 1s. on that day for gardeners, and 2s. 6d. for their wives. On the previous day it is 2s. 6d. for the gardener and 5s. for the wife, thus making the visit, especially to gardeners coming from remote places, very expensive. During the ensuing week the charge for admission all round is 1s., but it is feared few gardeners would care to come far to see the Exhibition at so late a period. The proposal of the Dinner Committee is that dinner tickets shall not exceed 5s. each, and that gardeners' wives would be welcomed. Will all gardeners who favour the proposed dinner kindly send me a postcard to that effect at an early date. The committee will then have information on which to act. *Alex. Dean, 62, Richmond Road, Kingston-on-Thames.*

CROSS AND SELF-FERTILISATION OF PLANTS.—In your leading article of the *Gardeners' Chronicle* for December 2, 1911, entitled "Increased Yields from First Generation Hybrids," you observe:—"As to the scientific aspect of these matters there is nothing to say, for nothing is known." This, however, is not quite correct. No mention is made of Darwin's *Cross and Self-Fertilisation of Plants* (1876), nor of a series of articles analysing and criticising that work in the *Gardeners' Chronicle* for 1877, nor of my paper on "Self-Fertilisation of Plants" in the transactions of the Linnean Society (November 1, 1877, pp. 317-398), nor in my *Origin of Floral Structures*, wherein the same subject is discussed (1888). The results of experiments proved that crossing was only a temporary stimulus, that is, for one or few years—as you show to be the case with Maize—so that, after the plants have been crossed for a few generations they lose their seed-bearing power. As examples, Mr. H. B. Smith, of Ealing, once known for his Cyclamens, told me that, after securing fine plants, the seed failed; so that he always kept a number of the "weedier" plants, as he called them, wherewith to raise seed, for if not crossed they seeded abundantly. These he then crossed, and so kept up his standard. Another florist told me by continually crossing *Primulas* of the same kind he lost the whole stock, for they failed to set seed at last! Darwin's cultivation of *Ipomoea purpurea* revealed a similar thing. He grew it for ten generations, and he gives the

heights of the crossed and self-fertilised for every year. Taking 100 as the fixed height for the crossed, the self-fertilised show maxima and minima; but if these are grouped by three years together, we find the ratio is 100: 74.3, 100: 77.6, and 100: 81.6; that is to say, the self-fertilised were steadily gaining upon the heights of the crossed generations. *Dianthus* like *Lobelia fulgens* is strongly protandrous, but with regard to fertility, "eight crossed plants produced 21 capsules, of which only 12 contained seed averaging 8.5 per capsule. On the other hand, the eight self-fertilised produced no fewer than 36 capsules, with an average of 11 seeds." This shows how flowers readily, even if specially constructed for cross-fertilisation, revert to the usual prolific condition of self-fertilisation. *George Henslow.* [Professor Henslow's remarks serve to emphasise our statement that "as to the scientific aspect of sterility nothing is known."—Eds.]

JUDGING AT THE FRUIT SHOW.—I am not dismayed by the anger of *A Judge* through my drawing attention to the unfairness involved by the judges' intermingling with the exhibitors during the hours of staging. Far from being a disappointed exhibitor, I am a very successful one, and undoubtedly the successful exhibitor is the proper person to adjudicate at any show, but not if he is a competitor at the show in which he is a judge. In my letter on page 310, I did not mean to reflect on any one of the judges at the recent fruit show. This point was raised by *A Judge* himself, and he appears to be very sore about it. Now he has raised it, however, I will ask him a question, namely, Why did he not see that the awards made in the class for "any other cooking variety" were not altered? Would it not have been more straightforward to have announced, through these columns, the error of judgment? Had *A Judge* read carefully the very plainly-worded rules of the R.H.S. before adjudicating at this show, instead of taking a general inspection, he would, without doubt have avoided this error and escaped all discussion. As it is, I think many readers will agree with me that there was cause for complaint, and *A Judge* must not forget that while he defends his honour and integrity, he must, in fairness, consider the exhibitor, who, after having staged his exhibit, expects at least to have it judged according to the rules of the schedule. *Fairplay.*

—I was pleased to read *A Judge's* reply to *Fairplay*; but must say that I think judges should not be present whilst exhibitors are staging their exhibits. We have lately had a show near here, and while we were putting up the exhibits one of the committeemen and one of the judges were walking round the room and passing remarks on them. They know the exhibitors of several of the groups, and the committee member himself was showing in some of the classes. When I am exhibiting in competition, I much prefer that the judges should not know to whom the individual exhibits belong. *North Dorset.*

"IRISH AND SCOTTISH FLOWER GARDENS."—"Nothing is more a Child of Art than a Garden." This is the title of one example in a very charming exhibition (at James Connell & Sons' gallery, 47, Old Bond Street) of "Flower Pies and Gardens" done in pastels by Mary G. W. Wilson, a Scottish artist, who evidently loves her garden. She has studied nature and art side by side and has a control of the technicalities of pastel-painting, achieving a delicacy and point in her delineation of flower forms—which is rare in this medium of craftsmanship—as well as the brilliance of colour which is peculiar to it. Indeed, these pictures combine the excellences of both oil and water without being either. One of the most interesting "gardens" is that of "Mount Usher, Co. Wicklow," which conveys quite an Oriental impression as an avenue composed of rare trees, in which the fan Palm predominates over the lesser stature of the English trees and large masses of tropical plants. These all speak for the mildness of the Irish climate. One, "An Irish River Garden," tempts the beholder to set sail for the Emerald Isle at once. These British gardens hold their own even against such luxuriant scenes as that "Venetian Garden" embowered in *Wistaria* blossom which affords Miss Wilson such fine scope in mauves and purples, lighted up by sunlight and contrasted in shadows. Delicacy and tender feeling

for the more intimate form and restrained colour of wild flowers in soft-toned daylight are shown in several studies of flowers, such as "Love-in-a-Mist," that most delightful of wildlings in colour, of palest blue, and of form so graceful. And, again, in a pink "Tangle of Wild Roses" and deep-red "Penzance Briars." These floral pieces are interspersed with some excellent landscapes, among which the Cornfields tell the most pleasingly in their lowered tones of pale gold and grey shadow. *Mary L. Breakell.*

GREENGAGES NOT FRUITING.—A Frankfurt correspondent writes to say that the failure of Greengage trees to fruit has been noticed in Germany, and attributed not to the absence of other varieties of Plums near them to insure cross-fertilisation, but to the fact that the trees were grafted. Those grown from suckers, he remarks, have fruited well, and, in some parts of Germany, such trees alone are now being planted. But if, as I believe, all Greengage trees in England have been raised from buds or grafts, while some fruit fairly and others very little, there is still some mystery to be explained, though it may be the case that the trees generally would have fruited better if they had been raised from suckers. *A Southern Grower.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

DECEMBER 5.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Dr. A. B. Rendle, F.R.S., Messrs. G. Gordon, A. Worsley, W. Fawcett, G. F. Wilson, J. O'Brien, W. C. Worsdell, and F. J. Chittenden (hon. sec.).

The late Mr. James Douglas.—It was unanimously resolved to convey a vote of condolence to Mrs. Douglas on the death of Mr. James Douglas, who had for many years been a member of the Scientific Committee.

Double Odontoglossum crispum.—Mr. GURNEY WILSON, on behalf of Mr. JENSEN, showed a double flower of *Odontoglossum crispum*. The two outer whorls were normal, but the stamens had apparently developed and become petaloid. The plant showed the same peculiarity each year.

Gall on Ribes alpinum.—Dr. RENDLE exhibited a branch of *Ribes alpinum* from a place near Grantham, having large numbers of black galls upon it about $\frac{1}{2}$ inch to 1 inch long so numerous that the whole bore a superficial resemblance to a small branch of Larch bearing numerous small cones. The cause of the production of these galls was unknown.

Uncommon fruit.—Mr. GEO. GORDON exhibited a ripe fruit of *Holboellia latifolia* (*Stauntonia latifolia*) from a wall at Somerleyton Hall, where it had not been known to fruit before.

Aberrations of Saxifraga ligulata.—Mr. W. C. WORSDELL showed specimens of leaves from a plant of *Saxifraga ligulata* at Kew which, season after season in the autumn, produces leaves of ascidia form and developed in different degrees. Many of the leaves showed cresting as well.

Violets with branched peduncles.—Mr. WORSDELL also exhibited Violets with branched peduncles from Mr. Williams. The specimens were sometimes branched low down and sometimes so near the flower, that two double flowers were developed almost touching one another.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

DECEMBER 11.—The monthly meeting of this Society was held at the Royal Horticultural Hall, Vincent Square, S.W., on this date. Mr. Thomas Winter occupied the chair.

Three new members were elected, making a total of 48 for the year.

A long discussion took place on the State Insurance Bill, and it was decided that a circular letter relative to the above Bill be sent to all members.

It was stated by the Secretary that the amount of sick pay disbursed during the past month amounted to £38 9s.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

NOVEMBER 30.—*Committee present:* Rev. J. Crombholme (in the Chair); and Messrs. R. Ashworth, W. R. Lee, C. Parker, H. Thorp, A. Warburton, Z. A. Ward, J. Cypher, H. Evans, W. Holmes, A. J. Keeling, D. McLeod, and H. Arthur (secretary).

W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse), was awarded a Silver-gilt Medal for a miscellaneous group, amongst which were noticed some fine *Odontoglossums*.

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), was also awarded a Silver-gilt Medal for an effective exhibit, the more noteworthy plants being given under "Awards of Merit."

Z. A. WARD, Esq., Northenden (gr. W. Weatherby), staged a good group for which a Silver Medal was awarded; a magnificent plant of *Odontoglossum Charlesworthii*, "Ward's var.," with a branched spike 6 feet long, *Lycaste Skinneri* "alba," and *Oncidium tigrinum* were noticed in this exhibit.

Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton) was awarded a Silver Medal for *Odontoglossums* in variety, including a fine plant of *O. ardensissimum* "zanthotes," *O. eximium* "Rutherfordianum," *Cattleya labiata* and hybrids, *Cypripedium* "Bonar Law" (J. Howes × *Actæus*), several plants of *Oncidium tigrinum*, and a batch of *Epidendrum vitellinum* majus.

Rev. J. CROMBHOLE, Clayton-le-Moors (gr. Mr. Marshall), staged a group of *Cypripediums*, for which a Bronze Medal was awarded.

A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), was also awarded a Bronze Medal for a group of *Cypripediums*, the insignie section being represented by fine examples of *Harefield Hall*, King Edward VII., Clara Measures, Barry-an, and Bohnofianum.

J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), was awarded a Bronze Medal for a mixed group of *Cattleyas*, *Lælio-Cattleyas*, *Cypripediums*, and several plants of *Oncidium Rogersii*.

G. H. PEACE, Esq., Monton Grange (gr. Mr. Mace), showed a group of *Cypripediums*, for which a Bronze Medal was awarded.

WM. THOMPSON, Esq., Walton Grange, Stone (gr. Mr. Stevenson), was awarded a Bronze Medal for a small but interesting group, showing *Cypripediums* Harri-Leanum, Golden Gem, Our King (Harefield Hall × *Niobe*), and a number of plants of the sweet-scented *Oncidium cheiroporum*.

J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson), staged several choice albino *Cattleyas* and a remarkable *Odontoglossum* × "Bronze Dragon."

R. LE DOUX, Esq., West Derby (gr. Mr. Fletcher), staged several novelties in *Odontoglossums*, which received awards.

H. J. BROMILOW, Esq., Rann Lee, Rainhill (gr. Mr. Morgan), staged *Cypripedium Lecanum* var. "Moss."

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver Medal for a group composed principally of *Cypripediums*.

Messrs. A. J. KEELING & SONS, Bradford, were also awarded a Silver Medal for a collection of *Cypripediums*.

Messrs. SANDER & SONS, St. Albans, staged *Cypripediums* Thalia var. "splendens," *Gratia* and *Alabaster*.

Mr. D. McLEOD, Chorlton-cum-Hardy, showed *Cypripedium Seymoure* (Lecanum *Clinkaberry-anum* × *Fairrieannum*), *C. Actæus revoluta*, *C. triumphans*, *C. vexillarium*, *C. Zena*, *C. Cravenianum*, and several seedlings.

Messrs. STUART LOW & CO., Middlesex, staged several choice *Cattleyas*, one named "Rhoda" being very fine.

Mr. H. ARTHUR, Blackburn, staged *Cypripediums* Laura Kimball, Sanderæ, Chantini Lindeni, and Aberdeen.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum var. "Boris," a heavily-blotched round flower; *O. "Thais"*, a hybrid of uncertain parentage; both from W. R. LEE, Esq.

Cattleya Boekmansiana "Ashworth's var.," a large flower of good colour; *C. "Gildenti"* (*Harefieldia* × *Morganii* *Rapleyi*), a beautiful hybrid; both from R. ASHWORTH, Esq.

Cypripedium Our King (Harefield Hall × *Niobe*), from WM. THOMPSON, Esq., a fine, bold flower, the Harefield Hall parent predominating.

Odontoglossum × *Bronze Dragon*, one of the most beautiful *Odontoglossums* yet seen; the flowers are $\frac{3}{4}$ inches across and coloured all over a delightful shade of pink or "crushed Strawberry"; *Cattleya labiata* "albansensis"; both from J. J. HOLDEN, Esq.

AWARDS OF MERIT.

Odontoglossum × *Hormachis*, *O. x. Lælio-Mitonia Leopoldii* "nobilior," a very fine flower of good colour, and *Cattleya labiata* "Virgin Queen," all from W. R. LEE, Esq. *Odontoglossum crispum* "Rosemount," a well-formed, evenly-marked flower; *O. eximium* var. "Nubian," of very deep colour; and *Panda cerulea* "alba," a rather small flower, with pure-white segments and lip of a beautiful blue colour. These were from R. ASHWORTH, Esq.

Cypripedium Cornejanum var. "Marie Louise," *C. Alcibiades* "Ward's var.," and *C. James Renwick* (Harefield Hall and *Actæus*), all from Z. A. WARD, Esq. *C. Bonar Law* (J. Howes × *Actæus*), a very neat flower, showing the characters of both parents, from Col. RUTHERFORD, M.P. *Lælio-Cattleya Captain Starkie* (L. C. Eudora × *C. labiata*), from J. MCCARTNEY, Esq.

Cypripedium hybrid, of unknown parentage, shown by WM. THOMPSON, Esq. *Cattleya O'Brieniana* *alba*, from J. J. HOLDEN, Esq. *Odontoglossum Mrs. H. B. Irving* (Lambauianum × *Pescatorei* Duchess of Westminster), a fine, well-coloured flower; *Cattleya Mrs. Frank Hurdell* (Trinia × *Iris*), and *Sophro-Lalia Miss Edith d'Abreu* (Etonensis × *Iris*), all from R. LE DOUX, Esq.

Cypripedium Lecanum var. "Mona," a fine flower of uncertain parentage, from H. J. BROMILOW, Esq. *C. Mrs. Alice Walsley*, a dark flower of good shape, with a band of white all around the dorsal sepal, from JAS. WALMSLEY, Esq. *C. Hitchense giganteum* and *C. magnificum*, both fine forms, from A. J. KEELING & SONS. *C. Sandersonii* *Lecanum Clinkaberry-anum* × *Fairrieannum*), from Mr. D. McLEOD.

CARDIFF HORTICULTURAL.

NOVEMBER 29.—The annual general meeting of the Cardiff and County Horticultural Society was held on the above date. The Chairman, Mr. S. Medhurst, in presenting the annual report, stated that it was not as favourable as could be desired, and it would have been almost disastrous from a financial point of view if it had not been for the great generosity of friends of the society. The balance to the bad would probably then have been considerably over £100, instead of, as at present, £34. With regard to 1912, Mr. Godfrey L. Clark had consented to be the president of the society. The following officers were elected:—Mr. Gilbert Robertson, chairman; Mr. Victor E. Brukewich, vice-chairman; Mr. E. J. August, hon. treasurer; Mr. A. Maurice Bailey, secretary; and Messrs. J. Percy Mountjoy and Co., auditors; Messrs. J. Hugh Howell and W. Edward Horley were added to the executive committee, other members of which, and the general committee, were re-elected.

LEEDS PROFESSIONAL GARDENERS' FRIENDLY BENEFIT.

DECEMBER 5.—The yearly meeting of the above Society was held at the Green Dragon Hotel, Leeds, on this date. The principal business was the completing of arrangements for the annual dinner and the election of officers for the ensuing year.

Mr. Donoghue presided over a well-attended meeting. The officers were elected as follow:—Chairman, Mr. A. Allinson, Roundhay Park; vice-chairman, Mr. C. Lewis, Oakwood, Leeds; treasurer, Mr. John Franklin; and secretary, Mr. Geo. Carver.

A statement of accounts will be published on the 31st inst.

SCOTTISH HORTICULTURAL.

DECEMBER 5.—The monthly meeting of the above association was held in the Goid Hall, Edinburgh, on this date. Mr. Massie, the president, presided, and there was an attendance of 120 members.

A lecture with lantern illustrations was delivered by Mr. Thos. Anderson, M.A., B.Sc., Edinburgh, and East of Scotland College of Agriculture, on "Insects and Flower Pollination." The lecture was much appreciated.

The exhibits were:—New single *Chrysanthemums* Miss Callander (creamy white), Mrs. G. F. Eyre, Miss E. L. Cowan, and Mrs. R. C. Cowan, from Mr. WM. G. PIRIE, Dalhousie Castle, Bonnyrigg; new single *Chrysanthemums* Lady Helen and another seedling variety (un-named), from Mr. D. McLEAN, Raith, Kirkcaldy; collection of *Chrysanthemums* from the CITY OF EDINBURGH DISTRESS COMMITTEE'S FARM at Muiriston, shown by Mr. Cairns; *Chrysanthemums* and Christmas Roses, from Mr. CHARLES COMFORT, Davidson's Mains; and a vase of *Chrysanthemum Felton's Favorite*, from Mr. JAMES BRUCE, Davidson's Mains. A First-class Certificate was awarded to *Chrysanthemum* Miss Callander and Certificates of Merit to Mrs. G. F. Eyre and Miss E. L. Cowan.

The convener of the Finance Committee stated that there was a balance to the good of approximately £25 on the *Chrysanthemum* show accounts, which was very satisfactory, considering the bad state of the weather on the first and second days of the show. It was agreed to hold a three days show in 1912, the dates to be November 14, 15 and 16.

The following office-bearers were nominated for the session 1912:—Hon. president, Captain Archibald Stirling, of Keir, Dunblane, in succession to Sir John Gilmour, Bart.; president, Mr. W. H. Massie (for re-election); vice-presidents, Messrs. J. Phillips and D. W. Thomson. There were 11 nominations for seven vacancies in the council.

The annual business meeting will take place on January 16, 1912, when the office-bearers for the year will be elected, and the revised constitution and by-laws will be submitted to the members for their acceptance.

It was intimated that Captain Stirling had invited the members to visit Keir in 1912, and the invitation was cordially accepted.

HORTICULTURAL CLUB.

LECTURE BY MR. ARTHUR SUTTON.

DECEMBER 5.—On this date the usual monthly dinner of this club was held at the Hotel Windsor. Mr. Harry J. Veitch presided, and there were present about 50 members and guests, including ladies.

After the dinner a lecture was delivered by Mr. Arthur W. Sutton, J.P., V.M.H., entitled "Four Hundred Miles on Horseback East and West of the Jordan." The lecture was illustrated by means of 100 beautifully coloured views of the Lebanon, Gilcad, Basham, Moab, and Southern Palestine, and was intensely interesting, as most of the views had been taken by Mr. Sutton himself, who described them in detail, relating the difficulties and adventures which were encountered on the journey, together with the habits, customs, and industries of the Arabs, Jews, and other inhabitants of the district traversed by him and his party, who travelled under the care of Messrs. Cook & Sons.

As Palestine is only about 150 miles from north to south, the first slide represented a map of that country, upon which Mr. Sutton indicated the tortuous route which made up the 400 miles traversed, embracing the many points of salient interest which the plan included. As the scene of innumerable scriptural references, Mr. Sutton increased the interest of most of the slides by briefly alluding to these, indicating now and then how a visit to the actual localities dissipated critical doubts which had been raised on biblical statements. The many magnificent ruins of ancient temples of Roman, Greek, and still older periods, which indicate the presence at some time or other of great populations in districts that are now deserts, were shown on the screen to great advantage, and among these undoubtedly the most curious and interesting were those of Deraa. Here there are at least four cities superposed the one above the other. The present Arab buildings are founded upon a Greco-Roman

city, which in its turn stands on the remains of a still older one in which bevelled stones are used, whilst below these three there is a troglodyte city entirely excavated in the native rock, the subterranean residence of King Og. This subterranean city consists of a labyrinth of streets with shops and houses and a market place, but it is hardly safely accessible to foreigners. A reference to the Dead Sea related to the curious fact that it lay no less than 1,300 feet below the level of the Mediterranean, and forms the lowest lying body of water on the earth's surface. It was computed that about six million tons of water pour into it daily, the whole of which is evaporated, as there is no obvious outlet; its excessive saltiness is therefore the outcome of accumulation from the Jordan of the minute quantity of salt in its waters. From the Dead Sea to Jerusalem there is a rise of nearly 4,000 feet, as that city is about 2,500 feet above sea level. The Jerusalem of Christ's time lies about 100 feet below the level of the present city, and in this connection and others the lecturer alluded to and showed some slides of the valuable work effected by the "Palestine Exploration Fund," which has now been busy for 45 years in bringing to light the many buried treasures of Palestine.

After the delivery of the lecture, Sir Chas. Watson, Chairman of the Palestine Exploration Fund, and Mr. Harry J. Veitch offered some remarks, and referred in highly appreciative terms to the lecture and views.

Particulars of membership of the club may be obtained from Mr. R. Hooper Pearson, Hotel Windsor, Westminster.

PERPETUAL-FLOWERING CARNATION.

DECEMBER 5.—The annual meeting of this Society was held at Anderton's Hotel, Fleet Street, on this date. The meeting was preceded by a dinner, at which about 30 members and friends were present, including Messrs. J. S. Brunton, W. E. Wallace, W. H. Page, H. F. Mason, G. W. Leak, W. Wells, junr., L. J. Cook, and the Rev. J. Jacob.

The first business of the annual meeting was the consideration of the annual report, which was read by the Hon. Secretary, Mr. E. F. Hawes.

The following extracts are from the report:—

Two exhibitions were held during the year, the winter show taking place at the Royal Horticultural Hall, Vincent Square, on December 13, 1911, and the spring show at the Royal Botanic Gardens, Regent's Park, on May 2 and 3, 1911.

With a view to encourage amateur members residing at a distance of over 50 miles from London, and who do not compete in other varieties, the committee introduced a special section in which they provide vases and stage the flowers.

Your Year Book of the Society having proved such a great success during the preceding year, your committee decided to continue its publication in 1911 in a larger and improved form.

A steady increase of membership has taken place. The roll of active members on October 31, 1910, was 272; on October 31, 1911, 301.

The series of trials undertaken by the Society in order to ascertain the suitability of the perpetual-flowering Carnation as a decorative plant for the open border, were conducted in Regents' Park, and extended to St. John's Wood, Hampstead, and other centres. Full reports of these trials will appear in the Year Book.

The steps taken at the last annual meeting to ensure that no varieties raised in the British Isles would be considered for certificate or award unless registered have proved most successful. The total number of British-raised varieties registered to date has reached the large number of 84.

Your committee were fortunate in arranging with Messrs. J. S. Brunton, C. Engelmann, and W. E. Wallace, who were visiting America, to represent the Society at the American Cultural and Horticultural Exhibition, and the annual meeting and show of the American Carnation Society, in March, 1911.

Your committee is further pleased to report that a working arrangement has been made with the American Carnation Society in regard to preventing the duplication the names of varieties raised both here and in the United States, which it is anticipated should prevent confusion in nomenclature in the future.

On behalf of the Society, a donation of 10 dollars has been made to the fund which is being raised by the American Carnation Society to perpetuate the memory of the late Mr. Fred Dwyer, whose great work on behalf of Carnations is so well known and so greatly appreciated. The object of this fund is to raise a sum sufficient to establish a gold medal to be awarded annually at the American shows for the best new variety of Carnation exhibited.

Your committee is pleased to record that the directors of the Royal International Horticultural Exhibition, 1912, have made excellent provision for perpetual-flowering Carnations, and have practically adopted the whole of the suggestions made by your committee in the classes where gold medals presented by this Society are offered. Mr. J. S. Brunton and Mr. Hayward Mathias are the Society's representatives on the general committee of the Royal International Exhibition.

The adoption of the report was formally moved by the Chairman, who briefly outlined the work of the Society.

The Hon. Treasurer read the financial statement, and this, together with the report of the committee, was ordered to be printed and circulated.

It was decided to increase the general committee from 18 to 30 members, eight to form a quorum, and ten to retire annually.

A letter was read from Mr. Hayward Mathias, who has been Secretary of the Society since its formation, and conjointly with Mr. Hawes for the past two years, regretting that he was unable to attend, owing to severe illness, and was therefore compelled to resign his office. Mr. Hawes was asked to write on behalf of the Society, expressing sympathy and hopes for a speedy recovery.

Lord Howard de Walden was again elected president; the vice-presidents were also re-elected, with the addition of Messrs. H. Mathias and F. C. Harwood. Mr. J. S. Brunton was re-elected chairman, Mr. W. E. Wallace vice-chairman, Mr. L. J. Cook hon. treasurer, and Mr. E. F. Hawes hon. secretary and show superintendent.

NATIONAL SWEET PEA.

DECEMBER 8.—Committee meetings in the forenoon, the annual general meeting of the members at 2 p.m., followed by a dinner at 6 p.m., and a conference in the evening, provided a busy day's work for the members of the National Sweet Pea Society, at the Hotel Windsor, Westminster, on this date.

ANNUAL MEETING.

The annual meeting was attended by close upon 100 of the members: the chairman, Mr. G. W. Leak, presided. At the commencement of the proceedings Mr. S. B. Dicks referred to the serious illness of Mr. William Deal, a well-known member of the Society, and it was unanimously resolved that a telegram be sent to him expressing the sympathy of the meeting. The Chairman submitted the committee's annual report and financial statement, from which we extract the following details:—

The year 1911 has been an eventful one for the Society. Quite early in the year difficulties arose in connection with the formation and election of the Floral Committee, due chiefly to the fact that there were no rules governing these matters, or for the guidance of the Committee when elected. Eventually rules were adopted by a special general meeting, and under these rules the Floral Committee for the year was elected.

The Society has sustained a great loss by the death of its Trials Superintendent, Mr. Charles Foster.

A record for the accession of new members has been established, no fewer than 203 having joined during the year. The membership shows a considerable increase, over the year standing on 1,400, notwithstanding losses from various causes amounting to 140. It may be necessary in the near future to safeguard the interests of the Society by withholding the Annual and tickets of admission to the exhibition, until the annual subscription has been paid. Societies in affiliation now number 125, an increase of 16 for the year.

The Society is in a sound financial position, as £150 are on deposit, and a cash balance is again carried forward. The year has proved a profitable one for the work, as large as last year, and this is due chiefly to the increased expenditure in connection with the work of the Floral Committee, extra printing and postage incurred by several special meetings, and the great cost of the International Horticultural Exhibition of 1912.

There were 260 Novelty Trials and eight Purity Trials. Greater space was provided this year, and shading was afforded the orange and salmon varieties.

The exhibition in a show was as usual, and the receipts at the gate amounted to £241, as compared with £265 8s. 6d. in 1910. The exhibition for 1912 will be held at the Royal Horticultural Hall, on Tuesday and Wednesday, July 9 and 10.

The second Sweet Pea Conference, held at the Hotel Windsor, on December 11, was an unqualified success.

The popularity of the Annual steadily increases. The forthcoming Schedule of Prizes will be distinct from the previous one, and necessary to Class and specific varieties have been entirely omitted, and novelties provided for in liberal fashion. The district classes are a quite new feature, as also are the classes for new seedlings and for the best new variety.

During the year 1912 the great horticultural event will be the Royal International Horticultural Exhibition, to be held at the Crystal Palace, which will be the first time that the Horticultural Society will have been represented at this great show.

The balance sheet showed a total income of £932 15s. 4d., including £336 11s. 1d. subscriptions for 1911, balance from 1910 of £123 15s. 9d., and bank deposit £100. The heaviest item of expenditure was £213 4s. for printing and stationery.

There was some discussion with regard to the withholding of tickets from the members until their annual subscriptions were paid, but on the proposition of Mr. Cuthbertson, the report was adopted as printed. Regarding the financial statement, Mr. Walter P. Wright drew attention to the very large expenditure for printing, posting, and stationery, observing that, in view of the extra trials this year, it behooved the members to

practise the strictest economy. He proposed that a small sub-committee be appointed to consider this matter. This was seconded by Mr. F. W. Harvey. Mr. Wright's suggestion, however, was not adopted, as it was considered that the items were not unreasonable, especially in view of the extra number of meetings that had been held this year and the drafting of rules, forms, etc., all necessitating a corresponding increase in postage. The secretary, Mr. C. H. Curtis, said that the lowest tender submitted for printing was accepted. The financial report was thereupon adopted without further discussion. The meeting then proceeded to elect the officers for the ensuing year. The retiring president, Lady Northcliffe, was, on the proposition of Mr. Hugh Dickson, accorded a hearty vote of thanks. Mr. Leak, the retiring chairman, was also thanked for his services, and presented with the special gold medal of the Society. The medal was handed, amidst applause, to Mr. Leak by Mr. C. W. Breamore, who referred to the kindness and great tact shown by Mr. Leak at the committee meetings, and especially in reconciling differences of opinion. It was all the more pleasure, said Mr. Breamore, to have the privilege of proposing the vote of thanks, as he was afraid he himself had been rather prominent in the discussions. Mr. Robert Sydenham was, on the proposition of Mr. Horace Wright, elected president for the ensuing year. The secretary, Mr. C. H. Curtis, was re-elected amidst enthusiasm, and asked to accept the sum of 70 guineas as an honorarium. The treasurer, Mr. N. N. Sherwood, was also re-elected. Mr. Unwin proposed the election of Mr. Thomas Stevenson to the post of chairman for the ensuing year, and this was carried unanimously and with applause.

ALTERATION OF RULES.

The next business before the meeting was the consideration of a revision of the rules as proposed by the General Committee, a subject which caused a long discussion. The committee recommended that Rule 4 relating to the privilege of the members, should have added "and to a copy of the Annual and schedule." Some argued that no members should be sent a ticket, nor the Annual or schedule, until his subscription be paid, but this was considered an unwise policy, and the rule was adopted as it stood and without the committee's recommended addition. The Rules 8 and 9, relating to the Floral Committee, caused the keenest discussion. In both cases, the General Purposes Committee submitted alterations, whilst there were other propositions in the names of members. As Rule 8 was considered to be more or less governed by Rule 9, it was decided to consider Rule 9 first. Rule 9 reads: "The Floral Committee of the National Sweet Pea Committee shall consist of nine members of the Society irrespective of whether they be amateurs or traders." The General Committee proposed to add the words "anyone sending a novelty or novelties to the trials, or having any interest as raiser or distributor in any novelty or novelties sent, or who is in the employ of such raiser or distributor, shall not be eligible to serve on the Floral Committee while such novelties are under trial. Should a vacancy arise under this rule, the General Purposes Committee shall have power to fill such vacancy, and the substitute shall be eligible for election the following year." Mr. Robert Sydenham stated that the proposed amendment was against the best interests of the Society. Mr. Vernon Hill and Mr. George Gordon adopted the same attitude in their speeches. Mr. Walter Wright considered that it was undesirable for any person having any financial interest in a variety to adjudicate upon it at the trials, and said that there was a deep feeling among the members in favour of some change in the constitution of the Floral Committee. Captain Ashworth supported Mr. Wright. Mr. Cuthbertson opposed the recommendation of the General Committee, of which he was a member, and stated that the proposed alteration was only carried by a small majority. If the committee's recommendations were adopted, he considered that the Society would lose some of the best expert opinion for ever. He would suggest that the classification of varieties should follow alphabetical order, and that one-third of the committee, consisting of members receiving the fewest number of votes, should retire annually. Also that a member of the Floral Committee interested in a novelty should retire when that particular variety was being adjudicated upon, as is

ROMANS.—English dessert Apples are a very limited supply, but of culinary varieties there is a sufficient quantity to meet the demand, consisting principally of Bramley's Seedling, Lane's Prince Albert, and Dunselow's Seedling. Apples of the latter variety are not so numerous as they are fairly plentiful; the fruits are packed in boxes containing from 8 to 12 dozen fruits each, presenting a very attractive appearance. The principal source of supply is the Empire State from the noted Wenatchee Valley, Washington State, including the following varieties: Rome Beauty, Winter Banana, Wine & Sp. Jonis' A's, Esopus, and Grimes's Golden Wonder. Apples are also received from British Columbia, Canada, and the U. S. States, and there will apparently be ample supplies of this fruit to meet the extra demand at Christmas and New Year's. The fruits are packed in boxes and are practically finished. Peaches from California consist of the following varieties: Winter Nelis, Easter Beauty, and Doyenne du Comice, all the fruits being, as usual, well supplied with the quality of the season. Apples and a good supply of Oranges from Spain, Jamaica and California. All varieties of hot-house Grapes are scarce in comparison with the quantity of the quality of the season. The supply is small, and as many as 10,000 barrels are being unloaded at the docks at the time of writing, which, we learn on good authority, is the last shipment for the season. Supplies of the latter variety are not so numerous as they are equal to the demand. There will be a fairly good selection of other tropical fruits, consisting of Mangoes, Custard Apples, Pineapples, and Guavas. The latter are plentiful. English Tomatoes are practically finished. Onions are arriving from Teneriffe in fairly large quantities.



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THE COLOURING OF APPLES.

SO far as I know, but few scientific men have devoted any attention to an enquiry into the reason why Apples colour better in one season than in another, or, indeed, to the cause of the development of colour generally, and to the precise nature of the change which takes place in the skin of an Apple when the colour turns from green to red or brown. From the fact that an Apple colours most on the side exposed to the sun's rays, it is clear that sunlight or heat is the main cause of colouring; but the general opinion appears to be now that colour is intensified by rainy weather. Mr. H. H. Raschen, now living at Southport, claims to have been the first person to suggest this theory. Writing in the *Agricultural Gazette*, of December 11, he says that at the Fruit Shows of the Royal Horticultural Society in the "nineties" he noticed that the Apples were generally well coloured when the late part of the

summer had been rainy, and generally lacked colour when that period of the season had been dry. It can hardly be held, however, that a sunless season would be productive of colouring. If rain has any influence at all, it must be in alternation with sunshine; but that sunshine alone promotes the highest colouring seems to be negated by the results of the past season, one of the driest and most sunny seasons ever known, when, as a rule, neither Apples nor Plums were conspicuous for colouring.

It is not known with certainty whether colouring is affected by influences outside the fruit or exclusively by those acting from within. Yet there is much evidence to indicate that the character of the soil has an influence upon colouring, as Apples from some districts are more highly coloured than those from other places. The fruit sent to shows by certain exhibitors is always coloured above the average, and that which is grown in my own soil, which contains a somewhat large proportion of iron, is generally highly coloured.

If rain helps to colour Apples, its influence is no doubt indirect, for rain tends to increase the growth of fruit, and, so far as my observations enable me to judge, increase in the growth of Apples is antagonistic to colouring. Evidence of this statement is afforded by the fact that Apples on young trees are larger and less coloured than those on old trees; also by the fact that Apples grown on arable land are larger and less coloured than those grown on grass land. I have about three acres of Apples on grass, all the rest of my orchards being arable, and the differences in the size and the colouring of fruit of the same variety from grass and cultivated land respectively are so great that an observer who is not an expert would hardly believe that the two lots are of the same variety. What is the explanation of these great differences? In my opinion it is that any conditions which increase size tend to reduce colour, while those which stunt size increase colour.

Mr. Raschen's immediate object in writing the letter referred to above was to dispute a statement made by a previous writer to the effect that the colouring of Apples is influenced greatly by thinning the fruit. In support of this statement the writer says that "when two pickings are made, the half-coloured fruits left at the first round will, within two or three weeks, increase in size and put on much more colour." Of course they will, for they will be longer under the influences producing colour, which increases as ripening approaches completeness. That the thinning increases the size of the fruit left there is no doubt, but my opinion is that the increase in colour is due entirely to the retention of the Apples on the trees for a longer time, and not at all to the thinning. Mr. Raschen's suggested explanation of the reason why, as he believes, colouring is promoted by rain, and hindered by sunshine without rain, is a curious one. It is that sun-heat promotes nitrification in the soil, and thus causes the increased development of leaf and branch at the expense

of fruit and fruit-buds; whereas, if rain falls, it lowers the temperature of the soil, reduces nitrification, and develops fruit. But why should it be supposed that nitrification benefits only leaves and branches, and not fruit? There seems to be no reason for such a supposition. As for fruit-buds, it is well known that they develop and ripen best in a sunny season. As stated above, it seems to me that the influence of rain upon the colouring of fruit is mainly an indirect one, and it may be added that such an effect is caused in spite of, instead of in consequence of, the influence of rain in increasing the size of the fruit.

To the theory that any influence which conduces to increase of size is antagonistic to colouring, it may be objected that the "tails" or "culs" of Apples are seldom well coloured. This, however, is because they are not ripe. If left to ripen, the smallest Apples are often the most brilliantly coloured; and so are the undersized Apples grown on a stunted tree or a cankered branch.

It must not be supposed from any of the preceding remarks that there is an intention of representing sunshine and rain as antagonistic influences. Both are needed for growth of trees and fruit, and probably both are needed for the colouring of fruit. But that sunshine, with the heat which it affords, is most essential to colouring seems to be indicated not only by what is said above as to the side of an Apple exposed to the sun being the most highly coloured, but also by the fact that fruit grown in tropical countries or in countries such as British Columbia and California, where the summers are more sunny and hotter than our own, is more highly coloured than fruit grown in this country.

It is possible that any influence which rain has upon the colouring of fruit is due to the sudden lowering of temperature which it causes. When we leave Apples on trees as long as it is safe to leave them, which with late varieties is until the nights become quite cold, they tend to become highly coloured, and this may be due to great and sudden changes in the temperature. The differences between day and night temperatures in such countries as British Columbia and California are greater, I believe, than in England.

That the colouring of fruit is not entirely due to external influences, however, is proved by the fact that some varieties of Apples are always more highly coloured than others. No external influences will render a Lord Grosvenor or a Lord Derby as brilliant in colour as a Bismarck or a Queen, or bring the tint of a Blenheim Pippin or a Duke of Devonshire up to the deep redness of a Gascoyne's Scarlet or a Fearn's Pippin. But this season I have some fruits of Lane's Prince Albert and Bramley's Seedling off grass land as deeply coloured on their sunny sides as Bismarcks are, though differing widely in tint. The same varieties grown on arable land and on younger trees are much larger and less coloured.

If the evidence given above be accepted as correct, it appears that colour in Apples depends upon variety, soil, stimulation or retardation of growth as influenced by ago

of trees of the situation, a grass or arable land, sunshine, and its accompanying heat, and changes of temperature due to rain or other causes; some of these influences tending in one direction and some in the other, individually or in combination. Eliminating differences due to variety, soil, age of trees, and stimulation or retardation of growth, we come down to the differences in colouring due to seasonal influences upon the fruit of trees of the same varieties and age, growing in the same soil in different years. These are sunshine and its accompanying heat, and changes of temperature due to rain or other causes. Other things being equal, it seems to me that we have the greatest colouring in Apples when we have a season of abundant sunshine and yet enough rain or other causes of changes of temperature when the fruit is nearly mature, and the least when in the ripening period of each variety the weather is either comparatively sunless and cold, or so dry that the changes of temperature caused by rain or other circumstances are few and slight. Of the precise chemical or physiological action which produces colour in fruit I do not pretend to have any knowledge. *A Southern Grower.*

NOTES ON IRISES.

I. VARTANI ALBA.

A DELIGHTFUL addition to our winter-flowering Irises is now available in the white variety of I. Vartani, which was already in bloom on December 5, both in the open ground and also in a pot, where the bulbs had no more protection than was afforded them by the shelter of a cold frame.

This plant has appeared. I believe, in various catalogues as a white form of I. Histro, but it is much more probable that it has been obtained from the Palestine representative of the reticulata group, to which the name of I. Vartani was given. Whether we look upon I. Vartani as a species or as a form depends, of course, on the view we take of the meaning of a species, but in any case the white form agrees with the type in having noticeably long and large crests to the style branches and in the Almond perfume of the flowers. Moreover, I understand that this albino appeared among cultivated plants in the neighbourhood of Jerusalem. It is unfortunate that the cultivator has presumably over-cultivated and over-fed his bulbs, with the result that a certain proportion of the flowers show deformities or abnormalities in the shape of an extra fall or style branch, in addition to the usual number. In a letter which I received from the raiser, he even insisted on the fact that the bulbs were capable of producing flowers with four or six falls. As a matter of fact, the bulbs were very large and each is producing two or three flowers, but I still fail to see that the extra fall in any way adds to their beauty. Indeed, the normal form is, to my mind, infinitely preferable.

The slender standards are not erect, but diverge outwards at an angle of about 45°; the style branches with their crests are as long as the falls, which have a narrow, lanceolate blade. The whole flower is pure white, except for the raised, pale, greenish-yellow, central ridge running along the haft of the falls and for a few faint veins of the same colour on the blade and haft.

The leaves are about the same height as the flowers, and are distinguished by a very long, white, horny tip. The tip, which in some cases is over 4 inch long, is comparatively much longer in this Iris than in other reticulata Irises at present known to us.

Unless this Iris proves to have a better constitution than I. Vartani, it will probably fail to ripen bulbs in the open. Plants in pots need careful treatment when the flowers are over if their growth is to be well ripened, but if the soil has been made sufficiently rich, and if the roots are watered judiciously until the leaves begin to turn yellow, it should be possible to obtain some bulbs for another year. *W. R. Pykes, Charterhouse, Colchester.*

THE LIFE OF SIR JOSEPH HOOKER.

(Continued from page 449.)

INDIA.

In 1847, in the midst of the preparation of his great work on the *Botany of the Antarctic Expedition*, Hooker undertook a mission to India, under Government auspices, the main objects being to study tropical and Alpine vegetation, and to make collections of dried plants. But no branch of knowledge appertaining to the scientific traveller was neglected. Originally it was intended that Hooker should extend his travels to Borneo, for the purpose of reporting on the capabilities of Labuan for the cultivation of Cotton, Tobacco, Spices, and Guttapercha; but this part of the plans fell through, and his stay in India was prolonged to about three years and three months. Concerning the incidents of Hooker's journeyings, perilous, pleasurable, and profitable, reference should be made to his narrative, which appeared in 1854, under the title *Himalayan Journals, or Notes of a Naturalist in Bengal, the Sikkim and Nepal Himalayas, the Khasi Mountains, &c.* It is in two octavo volumes, containing maps and numerous illustrations. A second cheap edition, edited by G. T. Bettany, was published in one volume in 1891. Of this work it may be asserted that it is a book for all time, full of information on a variety of subjects, information mostly of a kind that years will not render obsolete, conveyed in a simple style, intelligible to the average reader. There is a great temptation to make extracts, but limited space forbids. The volumes are dedicated to Charles Darwin, "by his affectionate friend J. D. Hooker."

One event was very nearly having a tragic termination. While in Sikkim Hooker was joined by Dr. Campbell, a political officer, against whom there was a strong feeling, which ended in their both being made prisoners by the Rajah of Sikkim. Hooker's life was probably never in danger, so far as the Rajah himself was concerned; but Campbell was brutally ill-treated, and had he not been a very strong man, would probably have succumbed to the injuries and hardships he had to endure. It was soon discovered that a serious mistake had been made, and all sorts of schemes were resorted to in order to escape the consequences and shift responsibilities. Finally they were released from captivity on Christmas Eve, and ponies being supplied, they made with all speed for Darjeeling, where they arrived without encountering any further difficulties. Here Hooker met with Dr. T. Thomson, his companion during his subsequent travels and his collaborator after their return to England. For several years they were both busily engaged classifying and approximately naming their enormous collections ready for distribution. Before this was finished the herbaria of Falconer, Griffith and Helfer, of which there were seven wagon-loads, were sent to Kew from the India Office, and for a number of years up to 1865, a constant stream of duplicates was flowing to Kew from all parts of the world, where botany was cultivated. Of Hooker and Thomson's collections alone sixty sets were made up. Wight's and Burchell's herbaria were also presented to Kew towards the end of this period. The latter was estimated to contain 15,000 species, mostly represented by several or many specimens, the duplicates of which were liberally distributed.

A Catalogue of the Plants Distributed at the Royal Gardens, Kew, from the Herbaria of Griffith, Falconer, and Helfer, was printed in 1865, and supplied to the recipients of sets of the plants.

The preliminary, and what may be termed the supplementary literature of the Indian Mission is extensive. The preliminary contributions began to appear as soon as the mails brought the first letters from the traveller, and these were edited, in part, by Sir William. The titles of the most important follow here:—*Botanical Mission to India, 1847-1851*; Hooker's *London Journal of Botany*, vol. vii.; and *Journal of Botany*

and *Kew Gardens Miscellany*, vol. i. and ii., *passim*. Not all of the details contained in these articles were embodied in the *Himalayan Journals*.

"Observations made when Following the Grand Trunk Road, &c.," *Journal of the Asiatic Society of Bengal*, vol. xvii. (1843), part 2, pp. 355-412. Translation in *Berghaus's Zeitschrift für Erdkunde*, 1849, pp. 230-242. This is a highly-interesting paper, treating of the geology, meteorology, botany, &c., of the country traversed.

"Observations made . . . across the Hills of Upper Bengal, Paras Nath, &c.," *Journal of the Asiatic Society of Bengal*, vol. xvii. (1849).

"Forschungen in östlichen Himalaya aus einem Briefe desselben (J. D. Hooker) an A. von Humboldt," *Geographisches Jahrbuch*, 1849.

"Notes, chiefly Botanical, made during an Excursion from Darjiling to Tonglo," *Journal of the Asiatic Society of Bengal*, vol. xvii. (1849), pp. 419-446; *Horticultural Society's Journal*, vol. vii. (1852), pp. 1-23.

"On the Physical Character of the Sikkim Himalaya," Hooker's *London Journal of Botany*, vol. iii. (1851), pp. 21-31.

"A Fourth Excursion to the Passes into Tibet by the Donkiah Lab.," *Geographical Society's Journal*, vol. xx. (1851), pp. 49-52.

"On the Climate and Vegetation of the Temperate and Cold Regions of East Nepal and the Sikkim Himalaya Mountains," *Horticultural Society's Journal*, vol. vii. (1852), pp. 69-131; *Indian Agricultural Society's Journal*, vol. viii. (1854), pp. 35-65 and 73-95. This paper includes detailed descriptions in English of 28 species of Rhododendron with observations on their habitats, &c.

"On Maddenia (Rosaceae-Amygdaleae) and Diplarche (Ericaceae-Rhodoreae), New Genera," Hooker's *Journal of Botany and Kew Gardens Miscellany*, vol. vi. (1854), pp. 331-332, plates 11 and 12. This is a joint production of Hooker and T. Thomson, who designate the genera in question as "two of the most remarkable that have hitherto presented themselves to us during the examination of our Indian Herbarium."

The *Rhododendrons of Sikkim Himalaya*, edited by W. J. Hooker, 1849-1851, folio, containing 30 coloured plates, with descriptive and explanatory text. This magnificent work was issued in parts during Sir Joseph's absence in India. It was a revelation of the wealth and splendour of the Rhododendron element of the Himalayan Flora. Sir Joseph's sketches were developed by W. H. Fitch into gorgeous representations of many of the finest species; many of which were successfully introduced into English gardens by Hooker himself in 1850-51. The species figured are: *R. argenteum*, *argenteum*, *Aucklandii*, *barbatum*, *camelliflorum*, *Campbelliae*, *campylocarpum*, *candelabrum*, *ciliatum*, *cinnabarinum*, *Dalhousiae*, *Edgeworthii*, *elaagnoides*, *Falconeri*, *fulgens*, *glaucom*, *Hodgsonii*, *lanatum*, *lanceifolium*, *Maddenii*, *niveum*, *pendulum*, *pumilum*, *Roylei*, *salignum*, *setosum*, *Thomsonii*, *triflorum*, *virgatum*, *Wallichii*, and *Wightii*. There are many interesting passages in the *Himalayan Journals* relating to Rhododendrons, one of which runs:

"In order of prevalence, the trees were: the scarlet Rhododendron arboreum and *R. barbatum*, large, bushy trees, both loaded with beautiful flowers and luxuriant foliage; *R. Falconeri*, in point of foliage the most superb of all the Himalayan species, with trunks 30 feet high, and branches bearing at their ends only leaves 18 inches long, deep green above, and covered beneath with a rich brown down." In a passage relating to the collecting of seeds of Rhododendrons he adds, with much satisfaction, a list of species "now all flourishing at Kew and elsewhere." It was hardly to be expected that so rich a harvest of new Rhododendrons would be repeated, but Western China has since yielded an even larger number of endemic species, several of them not inferior in beauty to the finest of the Himalayan species.

Another superb publication is the *Illustrations of Himalayan Plants*, chiefly selected from drawings made for the late J. F. Cathcart, Esq., the plates by W. H. Fitch, 1855, folio, with 24 plates and descriptive letterpress. The plants figured are: *Hodgsonia heteroclita*, *Magnolia Campbelliae*, *Talauma Hodgsonii*, *Michelia Cathcartii*, *Meconopsis simplicifolia*, *M. nepalensis*, *Decaisnea insignis*, *Duabanga*

zonneratioides, Aucuba himalaica, Begonia Cathartii, B. gemmipara, Vaccinium salignum, Codonopsis gracilis, C. javanica, C. inflata, Eschynanthus Peelii, Buddleia Colvillei, Rheum nobile, Quercus lamellosa, Larix Griffithii, Cytosia Lindleyana, Vanda Cathartii, and Paris polyphylla. With few exceptions the plants of the foregoing list are, or have been, in cultivation; though not one of them has become common in gardens, yet almost every one is remarkable in some respect, and something of interest might be told of them all. Hodgsonia heteroclita is a very tall, shrubby climber of the Cucurbitaceæ, with large, yellow, unisexual flowers, and a rotate, deeply-lobed corolla, the lobes terminating in very long, curled tendrils. This plant has been cultivated in England for many years, growing most vigorously, but it has never produced flowers. The fruit is like a ribbed Melon. It is sufficient to recall the extraordinary colours offered by the herbaceous genera Meconopsis and Codonopsis, of which some striking new species are amongst the most

pages, and embraces the Orders from Ranunculaceæ to Fumariaceæ; the Orders actually dealt with being: Ranunculaceæ, Dilleniaceæ, Magnoliaceæ, Schizandraceæ, Anonaceæ, Myristicaceæ, Monimiaceæ, Menispermaceæ, Sabiaceæ, Lardizabalaceæ, Berberidaceæ, Nymphæaceæ, Nelumbiaceæ, Papaveraceæ, and Fumariaceæ. The definitions of the orders, genera and species, are in Latin, supplemented by elaborate notes on their distribution, affinities, and uses. The matter averages about two species to the page, so that if the work had been continued and completed on this scale it would have run to about 11,500 pages! After a long pause, Hooker started on a different plan, some particulars of which are given further on. Appended to this volume is an excellent map, by the authors, to illustrate the physical geography of India and the botanical provinces adopted in the work.

"On Brandisia, a New Genus of Scrophulariaceæ," by J. D. Hooker and T. Thomson, *Journal of the Proceedings of the Linnean*

also consulted in the matter, and his *Flora Hongkongensis* was adopted as a model for the series. Benthams undertook the *Flora Australiensis*, which consists of seven volumes, published between 1863 and 1878, and J. D. Hooker the *Flora of British India*. Benthams is sole author, but Hooker had the assistance of various botanists. His work also runs to seven volumes, which were published between 1872 and 1897, and consists of 5,668 pages, dealing with approximately 16,000 species*, belonging to 176 of the 200 Natural Orders recognised in Benthams and Hooker's *Genera Plantarum*. There is a general index to some 42,000 names.

Sir Joseph supplemented his *Flora* in 1904, by "A Sketch of the Flora of British India," under the auspices of the Secretary of State for India. It appeared separately, and as a chapter in the descriptive volume *The Indian Empire*, in the *Imperial Gazetteer of India*. It is supplementary to the essay in the *Flora Indica*; but before proceeding to extracts therefrom, attention may be directed to a census of the plants of India, com-



FIG. 178.—MUTISIA HICHTOLIA: FLOWERS PALE MAUVE.

(p. 40.)

desirable of later discoveries in China. *Quercus lamellosa* is one of the handsomest of the many fine Asiatic Oaks; its Acorns being something near 2 inches in diameter.

Flora Indica. *The Plants of British India*, by Joseph Dalton Hooker and Thomas Thomson, 1855. Only one volume appeared, octavo, pp. 280 + 285. The first 280 pages are occupied by an introductory essay on "The History of Botanical Discovery in India; on the Flora of India and its Relationships; and on Cognate Subjects." It is a remarkable array of facts and general information, but some excerpts will be given further on from Hooker's *Sketch of the Flora of British India* (1904), rather than from this. It may be mentioned, however, that W. Griffith's *Indian Herbarium* was estimated to contain 9,000 species, and Hooker and Thomson's 8,000 species.

The descriptive part of this work runs to 235

Society, vol. v. (1856), p. 11, t. 4. Several species of this genus have since been discovered in China. They are shrubs or small trees of ornamental character.

"Precursors ad *Floram Indicam*," J. D. H. and T. Thomson, *Journal of the Proceedings of the Linnean Society*, vol. ii., p. 1, 54, and 163; vol. iv., p. 106; vol. v., p. 128 (1857-1861). Descriptions of the Indian species of various natural orders, including the Balsaminaceæ, Crucifereæ, Campanulaceæ, and Caprifoliaceæ.

In 1863 Sir William Hooker formulated a scheme for the publication of a series of Colonial and Imperial *Floras*, which was sanctioned by H.M. Government, and has since been carried out almost in its entirety. It may be assumed that in this, as in many other things, Sir William had the aid of his son and official assistant. George Benthams, whose *Flora Hongkongensis* had already appeared (1851), was

pled at Sir Joseph's suggestion for comparison with other floras, in the Introduction to the botany of Salween and G. duan's *Biologia Centrali-Americana*, 1888, pp. ix-xxvii. It was compiled from the *Flora of British India*, as far as then published, and the rest from monographs and the Kew Herbarium. Statistics of the floras of Mexico and Central America, India, Australia, and the world are given in parallel columns. Some of the figures came as a surprise at the time, especially the estimated number of species of Orchids and of grasses, giving them first and third positions in ordinal predominance. The subsequent working out of these Orders proved that the estimates were in both instances considerably below the actual totals, and the ordinal positions the same as those assigned to them in the tabular comparisons.

* Not including the plants of British Burma in the earlier volumes; but which at least amount to 1,000 species would have to be added.

In the *Sketch* Sir Joseph divides India into nine provinces, and discusses their floras separately and comparatively. The provinces are: Eastern Himalaya, Western Himalaya, Indus Plain, Gangetic Plain, Malabar, Decan, Ceylon, Burma, and Malay Peninsula, with definitions. It is obviously out of the question to reproduce particulars here of the various provinces, but some generalisations and a few details are offered, mostly in the author's words. The number of recorded species of flowering plants in India, including British Burma, approaches 17,000, belonging to 176 Natural Orders, and there are probably 600 species of Ferns and their allies. The ten dominant Orders are: Orchidaceæ, Leguminosæ, Graminaceæ, Rubiaceæ, Euphorbiaceæ, Acanthaceæ, Compositæ, Cyperaceæ, Labiatæ, and Urticaceæ, in the sequence given. Of Palms there are more than 220 species; of Bamboos, 120; of Conifers only 22; and of Cycadaceæ, 5. The following genera (four of which are Orchidaceæ) are represented by 100 or more species:—*Dendrobium*, *Impatiens*, *Pedicularis*, *Strobilanthes*, *Ficus*, *Bulbophyllum*, *Eria*, *Habenaria*, and *Carex*. The number of different kinds of trees is about 2,500, exclusive of those of the Malay Peninsula, where trees are relatively more numerous and the endemic element larger.

About 570 European genera and 760 species are indigenous in India, of which about 450 genera and over 400 species are British. Many species of *Strobilanthes* (Acanthaceæ), like some Bamboos, grow gregariously, and flower simultaneously in different localities, and then die. *Aldrovanda vesiculosa* (Droseraceæ), a south European plant, with leaves like those of *Dionaea*, has hitherto been found nowhere in India, except in some saline ponds near Calcutta. There is no indigenous species of *Tilia*, *Fagus*, or *Castanea* in India, although all three genera are represented in both eastern and western countries. The Australian element in the Indian flora consists of one or a few species of the genera *Baeckea*, *Leptospermum*, *Melaleuca*, *Leucopogon*, *Stylidium*, *Helicia*, and *Casuarina*.

Returning to the Orchids of India, Hooker states that "more than 1,600 species are recorded, and additions are constantly being discovered." The number is evidently a misprint, or an error of calculation, for the total number described in the *Flora of British India* is 1,278, belonging to 116 genera. It is a little uncertain whether the Ceylon flora is included in the various totals recorded by Hooker. Assuming that it is, the addition to the Orchids would be only 74, as all—or nearly all—of the rest of the species (86) occurring in Ceylon are also found in India. Still, Orchids largely predominate over any other Order in actual number of species, but this only in the Eastern Himalaya and the Malay Peninsula. Orchids generally are very local, more especially epiphytial kinds, yet no fewer than 11 of the British terrestrial species extend to the Himalayas. The most widely-dispersed Orchid is *Spiranthes australis*, as defined by most authors. It is closely allied to our native *S. autumnalis*, and extends from the Ural Mountains and Afghanistan to China and Japan, Ceylon, Java, Australia, and New Zealand. *Dendrobium* is the largest genus, numbering, according to Hooker, 200 species, though only 164 are described. Indian Orchids are more extensively figured than those of any other large area. Upwards of 600 plates in the *Annals of the Royal Botanic Garden* are devoted to this family, and they include a *Century of Indian Orchids*, by J. D. Hooker, vol. v., 1895, tt. 1-100. Next to Orchids come the Leguminosæ, and Grasses take the third place numerically. There are 848 species of Grasses described in the *Flora of British India*, representing 154 genera, of which no fewer than 58 by one species only. Bamboos att in their greatest concentration in India, where 113 species belonging to 15 genera are known to exist. Meloclamus and Melocaula are remarkable for their very large "grain," that of the latter being 3 to 5 inches in diameter, and, as recently shown by Dr. O. Stapf, destitute of endosperm and viviparous.

As already mentioned, it is not quite clear whether the numbers of species, &c., extracted from Hooker's *Sketch* include the Ceylon flora, which exhibits some interesting peculiarities in its composition and affinities. Of the 2,800 species of flowering plants in Ceylon, a third (940) do not occur in the Peninsula, the majority of them being Burmese or Malayan. Ceylon

possesses no fewer than 23 endemic genera, of which 10, comprising 46 species (all except 2 endemic), belong to the characteristic Malayan Order of Dipterocarpaceæ, which is represented by only 12 species in the Peninsula. Altogether, there are 780 endemic species of flowering plants in Ceylon. The great Malayan affinity of the Flora is its most marked and interesting feature.

A *Handbook to the Flora of Ceylon*, by Henry Trimen. Consequent on the death of Dr. H. Trimen, Sir Joseph Hooker undertook the completion of this work, and he edited vol. iv. (1898), comprising the Euphorbiaceæ to the Naiadaceæ, and vol. v. (1900), containing the Eriocaulæ to the Gramineæ, the greater part of which he also wrote.

Hooker's *Flora of British India* has already

MUTISIA ILICIFOLIA.

In the interesting article on *Mutisia* by W., in the issue for December 9, the writer expresses a doubt if *Mutisia ilicifolia* is still in cultivation in this country. I send you a specimen and a photograph (see fig. 178) taken from one of the plants that have grown in the Royal Botanical Gardens, Edinburgh, for several years.

The plant thrives very freely in a cold greenhouse, and flowers almost the whole year round. Specimens planted out-of-doors at Edinburgh in a rather exposed position passed through the winter of 1910 unharmed by frost. Seeds are produced freely if the flowers are pollinated, and



FIG. 179. — *MUTISIA ILICIFOLIA* GROWING ON THE ROCKERY IN THE ROYAL BOTANICAL GARDENS, EDINBURGH.

served as a foundation for a number of other provincial and local Indian *Floras*. There is Dr. Theodore Cooke's *Flora of the Presidency of Bombay*; Lieut.-Colonel David Prain's *Bengal Plants*; Mr. J. F. Duthie's *Flora of the Upper Gangetic Plain*; and Colonel Sir Henry Collett's *Flora Sindensis*; besides numerous minor contributions to the botany of various parts of India. Notable and partly concurrent botanical works are the *Annals of the Royal Botanic Garden, Calcutta*, and Sir George King's *Materials for a Flora of the Malay Peninsula*. W. Bating Hemsley.

(To be continued.)

young plants may be raised in quantity from home-saved seed.

I also send you a photograph of *Mutisia ilicifolia* (see fig. 179) growing on the rockery here, where it rambles very freely over the stones, sending up freely-flowering shoots of 3 feet or more in length. The fruit of this species is interesting; the photograph (see fig. 180) shows the pappus attached to the seed. It is greatly to be desired that other species of this genus may be introduced to gardens; some are of a shrubby, dwarf character, and would form admirable subjects for the rock garden. R. R. Harrow.

THE ROSARY.

NEW ROSES OF THE N.R.S. "CATALOGUE."
I.—ROSES OF 1911.

THE 1912 edition of the N.R.S. *Catalogue* contains some 90 new Roses brought out in the years 1909, 1910, and 1911. Of these 32 are attributed to the year 1909 and 29 each to 1910 and 1911. It may be of some interest to consider a few of these Roses, but it must be understood that with regard to the Roses of the current year little can yet be known of their behaviour in the garden, and for the most part we must be dependent on their appearance at the shows, the reports of our friends who may have experimented with them, and the occasional observation of a few early-budded maidens that have "grown out."

ALEXANDER HILL GRAY.—The 1911 list begins with Alexander Hill Gray; it has been well shown this year, and from the fine pillar of flowers of this Rose that was staged at the autumn show at Vincent Square we may surmise that it is a good autumn rose, and that it may make a useful decorative Tea Rose for the garden, and sometimes be good enough for exhibition. The colour is a lemon yellow, some flowers having a brownish shading which is very attractive. It is a Gold Medal Rose.

CARINE is a garden or decorative Rose, and is certainly a wonderful colour, difficult to analyse on account of the number of different shades it contains. Orange-carmine to buff or creamy-salmon is the description attempted by the *Catalogue*, and doubtless all and any of these shades may be found in the Rose, but the mental picture conjured up by this mixture of colours is somewhat bewildering, and I think less beautiful than my recollection of the Rose itself. The distribution of colour and creamy texture of the petals recall Mme. Antoine Mari, but the shades and tints of colour are more intense than in that Rose. The plant is said to be vigorous and to flower freely, and it so when the price gets a little more reasonable it should be largely grown.

DOROTHY RATCLIFFE is another Rose of a striking colour, it is described as red-shaded fawn yellow, but my recollection of the Rose as shown is that the type of colour is similar to that we have become familiar with in Mme. Segond Weber and Mme. Edmee Metz, but somewhat deeper in shade than either of these Roses, and with rather more pronounced yellow shading. It is said to be from 2 feet to 2½ feet high and to flower continuously, in which case it should prove a useful bedding Rose.

DUCHESS OF WESTMINSTER.—In this variety we have another curiously-coloured Rose described as Rose Madder. I remember a fine vase of it at the last show held at Holland House in 1910 that produced a striking effect.

EDWARD MAWLEY, H.T., will be remembered by many as a deep crimson Rose, with large shell-shaped and somewhat loose petals, shown at the Botanical Garden Show of the N.R.S. in 1910, where it received the award of a Gold Medal. Among my friends I find very varying opinions expressed as to the merits of this Rose. Some, who have it in their gardens think very highly of it, both for decoration and exhibition, while others have suffered disappointment. My only personal observation of growing plants has been that of some early-budded maidens, with a few flowers in the heat of September. This was scarcely a fair test, for, as was the case with most red Roses, the sun seemed to have spoilt the colour. I am therefore keeping an open mind for next year with regard to this Rose.

ELIZABETH, H.T., is one of the many Roses described as a pink Frau Karl Druschki; only trial in the garden can determine the validity of the claim.

EVELYN DAUNTSEY, H.T., is salmon rose in colour, and some good flowers of this variety have been shown, well shaped with a pointed centre. It is said to resemble La France in habit.

FLORENCE H. VEITCH, H.T., is a semi-climber with crimson-scarlet flowers. A really good free-flowering pillar Rose of this colour is badly wanted, and it should be worth a trial for this purpose when the price becomes moderate.

FRANCIS CHARTERS' SETON, H.T., has been seen at the R.H.S. fortnightly shows. It is rose-pink in colour, and the form is full and fairly shapely.

JAMES FERGUSON, H.T., is a paler sport from Caroline Testout. It should be useful to exhibitors in giving them another dependable Rose.

LADY BARHAM, H.T., is a light or shell pink with a shade of orange.

LADY MARGARET B. S. AWTEN, H.T., is a similar colour with fawn-shading.



FIG. 180.—FRUIT OF *MITISIA DECURRENS*.
(See p. 450.)

LESLIE HOLLAND, H.T., is one of the most promising of the new Roses. Its chief point is its colour, which is a bright crimson that does not seem to turn at all blue in the sun, but keeps its colour to the last. A very fine exhibit of 18 blooms of this variety in a bamboo stand was staged at the 1910 summer show of the N.R.S., and several good flowers have been seen this year. It is said that it is of good constitution and that the flowers open freely and well. From the little I have seen of growing plants of this variety I should say this is probably correct, and if so it will prove a desirable Rose to possess when the

price comes to the point where it is worth the trouble of growing.

stock gets larger and the price smaller. Without doubt a red Rose that will stand the sun will be a real acquisition to the Rose garden. This Rose received a Gold Medal at the Luton show, 1910.

MABEL DREW, H.T., is also a promising new Rose of a creamy yellow colour, rather after the style of Mrs. David Mackee.

MELODY, H.T.—Of this Rose I know very little as yet, but I hail it with gratitude if only for its name. Garden Roses have been less fortunate than Daffodils in the names they have been asked to carry. Is it because of the greater number of new Roses produced annually, or because the raising of new varieties of Roses has been to a greater extent in the hands of traders and growers than in the case with Daffodils, where a larger proportion of successful hybridisers have been amateurs who have, perhaps not unnaturally, sought for somewhat simpler and more poetic names for their favourites? I do not know, but be it as it may, I welcome this new "break" in Rose nomenclature. Melody is a decorative or garden Rose of deep saffron-yellow with a paler border to the petals, and the raisers claim that it is free-flowering and mildew-proof.

MRS. AMY HAMMOND, H.T., a Gold Medal Rose, has white petals, with a yellow or orange base. Its colouring is not altogether unlike that of Mme. Jules Graveraux, but the flowers I have seen have been less rounded. It should make a useful garden Rose.

MRS. C. E. ALLAN, H.T., is a yellowish Rose, which may be tried for garden purposes; it has received a Silver-gilt Medal from the N.R.S.

MRS. CORNWALLIS WEST, also a garden Rose, has white flowers with a pinkish centre, which contrast well with its dark foliage. It has received a Gold Medal from the N.R.S.

MRS. FRANK WORKMAN, H.T., has well-formed flowers of a deep rose-colour. It has been well shown this summer and autumn.

MRS. GEORGE SHAWYER, H.T., has good well-shaped flowers of a bright rose-colour. No one who saw the grand pillar of Roses of this variety at the Temple Show, 1911, could fail to be struck with the fine effect of which this Rose is capable when grown by able hands under glass. At the N.R.S. summer show it was, I think, hardly looking its best, but even so it was well worth notice. In the garden I have found it a good grower, and the flowers last a long time when cut and put in water, but my experience of it is insufficient for me to speak of its decorative qualities. The flower is well shaped and has large shell-like petals of considerable substance.

MRS. J. H. WELSH, H.T., is a very large Rose of a rosy-pink colour, which has received a Gold Medal from the N.R.S.

MRS. W. T. MASSEY is a single-flowered Rose of orange-yellow colour. It is classed as a H.T., but as it is said to be an off-spring of Gloire de Dijon it is perhaps doubtful whether it should not be classed as a Dijon Tea.

OTHELLO, H.T., is a dark maroon-red Rose, a distinct colour for this class. It is said to be derived from that useful Rose Gustav Grunerwald, and it seems to be a good grower and fragrant.

PORTIA, H.T., was well shown at the R.H.S. exhibition in the Temple gardens as a nearly white flower with flesh-coloured centre.

ROSE DU BARRI, H.T., was also noticeable at the Temple Show, 1911. It is a rather small sweet-scented flower, semi-double, of the colour indicated by its name.

SYLVIA (Wichuraiana) also put in an appearance at the Temple. It is a creamy-white climbing Rose, flowering in long sprays. The point about this Rose is that it is said to flower both in summer and autumn, and its success will depend on its ability to make good this promise.

The other three Roses of 1911 contained in the *Catalogue*, viz., Deutschland, Ferniehurst, and Lady Greenall, are unknown to me as yet. Of the 1910 and 1909 Roses I hope to say something later. *White Rose*.

(To be continued.)

FLORISTS' FLOWERS.

NATIONAL SWEET PEA SOCIETY.

GREAT interest was manifested in the annual meeting of this Society, reported in the last issue. For many months its work has been heavily criticised in the Press and elsewhere, and it was expected that the discontented ones would be sufficiently strongly represented at the annual meeting to reverse the method of procedure in the election of the Floral Committee. By an enormous majority, fifty to six, the annual meeting, decided to adhere to its former method, and, with a solitary exception, declined every amendment. The one accepted was to the effect that one-third of the Floral Committee shall retire each year, and shall not be eligible for re-election for one year. This will ensure new blood being introduced annually. Of course, it does not mean that the remaining two-thirds have any lease of their position. All the nine members require to be elected each year, but the three receiving the lowest number of votes the year previous are not eligible even for nomination until a year has elapsed. It is to be hoped that strife, which is a good thing up to a point, will now cease in this useful and prosperous Society. The Floral Committee's constitution may not be perfect, but it has done excellent work in the past under the chairmanship of Mr. Walter P. Wright, and last year under that of Mr. Alexander Malcolm. Its decisions have always appeared to me to be, in the main, right, my reason for this conclusion being that they have been confirmed by the audits of the varieties shown at the exhibitions. That is, the Floral Committee's decisions in the classification lists agree with the opinions of the best exhibitors as indicated by the flowers they choose for exhibition. It is a great pleasure to know that the National Sweet Pea Society is not only increasing in membership, but also consolidating its financial position. The development of the Sweet Pea and its enormous popularity are one of the outstanding horticultural events of the last 10 years. E.

A PROLIFIC BANANA.

THE photograph of the remarkable Banana reproduced in fig. 181, was kindly sent to us by Mr. S. V. B. Down, of Singapore. The plant shown (*Musa sapientum*, var. "King of Thousands") is growing in a Singapore garden, and the bunch of fruits is about 7 feet in length. It is difficult to form a correct estimate of the number of fruits on this single stem, but it must be well over 2,000. As may be seen, room has been made to enable growth to continue, for the inflorescence is still throwing off its large bracts, and developing fresh flowers.

It may be remembered by some of our readers that in the issue for December, 1902, p. 471, an illustration was given of a similar bunch of Bananas from Penang, Federated Malay States. This was known locally as the "Elephant's Trunk," but we strongly suspect that it is really identical with "King of Thousands."

Although a tropical fruit, the Banana is more popular as a food in England than in very many countries where it is grown out-of-doors. Indeed, it is marvellous to look back over the past 20 years, and consider the enormous increase in the imports of Bananas into this country. Formerly, this fruit was scarcely known here, except in a few gardens where it was cultivated, and it was considered a choice desert fruit, ranking in this respect with the hot-house Pine, though its comparatively insipid taste made it much less sought after. But now the Banana is known and valued by all, and as a dessert fruit at Christmas ranks with the ever-popular Apple and Orange.

The West Indies and the Canary Islands are the chief sources from which we obtain our supplies of Bananas, although *Musas* are grown in almost all tropical lands.

BACK TO THE HILLS.

(Continued from p. 152.)

THE FLEIMSER THAL.

THE eastern wall of the Fleimsers-Thal is almost wholly igneous, and on the west impend the awful Dolomitic needles of the Rosengarten group, no less terrible from here than as one sees them from the summit of the Schlern, or from their very heart, on the crest of the Antermoja Pass. Gradually their full splendour unfolds as we ascend one of the many lateral valleys climbing eastwards out of the Fleimsers-Thal. By this time all the lowland flowers were

world but calcareous. But limestone was not lacking, for the other sloping wall of the glen was white as milk. Among the red, igneous rocks, as we continued, there were already huge jungles and tussocks of Geum reptans, interspersed with fat great bosquets of *Ranunculus glacialis*—here, once more, the stout robust *glacialis* of one's old friendship, rather than the more exiguous form that haunts the Nunda and the Clear Lake above the Mont Cenis. Passing this tract of stone, one comes to a tiny pool, with turf slopes descending to it from a dark-red mountain overhead on the right. And here my first alarm was dissipated, for amid the



FIG. 181.—BANANA "KING OF THOUSANDS" IN A SINGAPORE GARDEN.

gone, and there was no hope of any treasure short of the highest ridges. I was in fear for the result of that day: it was my first hunting after hybrid *Primulas* (for in these ranges *P. minima* meets *P. glutinosa*), and I feared lest children and parents and all might be out of flower, and I be left to pore arduously along the ground, collating every leaf in half an acre. We mounted rapidly, seeing only as we climbed the purple glare of *Linaria alpina* in the shingle. But at last, after three hours of toil, we came over the shoulder, and up into the desolate places where Hope has her dwelling.

All around was bald, red débris—porphyry, granite, syenite—I cannot say; anything in the

brown darkness glimmered here and there the violet sparks of *Primula glutinosa*. After this the track led over limestone. *Potentilla nitida* at once abounded, also lovely, snowy *Ranunculus Seguieri*, Flannel-flower, Alpine Poppy, *Thlaspi*. No sign as yet of *Ranunculus parnassifolius*. I marked, however, high ahead, certain rippled ridges of calcareous silt as being its likely home. And there sure enough the Buttercup abounded; but, alas! it was a disappointment. Be it well known that the real *R. parnassifolius* is one of the loveliest of all high Alpines, with five perfect petals, big, and round, and snowy-white, like a little *Anemone Honorine Joubert*. But you can never be sure of your

plant unless you find it in flower. I know, and have often seen, and dearly prize, the gloriously beautiful *R. parnassifolius* of the Ampezzo Dolomites. But too often people suffer, as I have suffered, from a *R. parnassifolius*, such as that on Piz Padella, which grows in dense, promising clumps, on open, earthy slopes, and flowers profusely; but rarely, if ever, has it any petals at all, only screwed-up, little yellow-green sepals, and chaffy-pale tabs, to do duty for the pure splendour of the best form. The latter is *not* a tuft-plant, and grows, not in open earth-pans, but in the very highest, finest, wet mud-silt of the limestone ridges, in single crowns, and wide, sparse colonies. Here, now, were the ridges, the silt, the limestone, the single crowns, indeed, and the plant accordingly was the same in habit as the Ampezzo beauty; but, with the best efforts, it never seemed able to produce more than two perfect petals to a flower, thus only giving a little better than the Padella form, which never produces any at all.

Leaving this, one passes over on to the granite again. *Androsace alpina* (white), *Ranunculus glacialis*, and *Gem* reptans by the acre among the stones. Then up on to turf, marsh lips and hollows. And here the whole world is turned violet by the purple of *Primula glutinosa*. This is, indeed, a most glorious plant—so blue, so beautiful, so sweet. It has a very bad name in cultivation as a shy flowerer, though it grows readily enough with us, and, I fancy, would answer exactly to the treatment of *P. farinosa* or *P. rosea*, in very fine turf. And I was consoled to notice, too, that, in Nature, though its abundance is such as to stain the hills, yet that it is not really a free flowerer even here. Innumerable among the innumerable flowering clumps are those that are flowerless. I seemed to gather, doubtfully, that the freest in bloom were good, crowded tufts, occurring on the lip of an earth-pan, or on some ridge of silted peat. It monopolised in glory all the hollows, and *P. minima* still lingered in crimson flecks amid the grass on the slopes.

And I need not have feared for my hybrids. There they all were in profusion, glowing like blots of bright lilac among the soft blue distances of *P. glutinosa*. The whole range of them was here, except that covered by the names of *P. Huteri* and *P. salisburgensis*. *Floerkeana* ran riot in a dozen nameable forms, however—most glorious, with the size and illuminated colour of *minima*, the height and habit of *glutinosa*; biflora and many another kindred form, primary or secondary hybrids, lurked more coyly. I found some superb developments, vast-blossomed, and one, a pure grandiflorous biflora, with the two-lobed segments of the corolla divided deeply yet again at their end. And, finally, I found a perfect albino of *P. glutinosa*.

After one leaves the cool hollows of the *Primulas*, there only remains the final ridge of granite. This is all blue with *Eritrichium* (I found another white one here, and from the mountain above was brought down a pure-white *Linaria alpina*), and the way up to it is thick with *Geum*, *Thlaspi*, *Ranunculus glacialis*, and *Anemone baldensis*. Most curious of all, the exact notch of the Pass is a strip of limestone silt, between two wide stretches of igneous rock. On that narrow piece of limestone—and there only—abounded *Ranunculus Seguieri*, pure white, exquisite, ferny-leaved; on either side of it, within a foot, on the igneous rock—and there only—abounded *R. glacialis*, fat-leaved, splendid, pearly-pink; and there was no sign of any intermediate, though both species were in full bloom. Indeed, I believe that *R. glacialis* has yielded no known hybrid. *R. Seguieri* has given only one, *R. Yvessi*, and that by the polygamous *R. pyrenaicus*. *Reinhold Farrer*.

(To be continued.)

HEATHS THAT FLOWER AT CHRISTMAS.

THE cultivation of greenhouse Heaths is nowadays largely left to a comparatively small number of nurserymen, who grow them in immense numbers, and turn out model little plants in a wholesale manner. The kinds chiefly in vogue are those that flower during the autumn, winter, and early spring, though some of the summer bloomers, especially the forms of *Erica ventricosa*, are grown to a limited extent. They are chiefly cultivated in the neighbourhood of London, and the September sales of these plants, just before the nights get too cold for them to be safely left out-of-doors, attract buyers from all parts.

The first to bloom of what may be regarded as the autumn-flowering Heaths is *E. gracilis*, which bears its rosy-purple flowers in great profusion. This Heath is naturally of a sportive character, and several forms of it are now in cultivation. Variations in depth of colour may, to a certain extent, be influenced by the treatment given, but, apart from the rosy-purple form of varying tints, there are the well-marked *E. nivalis*, with white blossoms, that occasionally show a little colour; another, *E. rosea*, in which the purple tinge is almost if not quite eliminated, and *E. vernalis*, which is considerably later in flowering than the others, as well as being of a more sturdy habit of growth.

A universal favourite is *E. hyemalis*, which is in considerable demand just before Christmas time. It is more particular in its cultural requirements than *E. gracilis*, but, still, delightful little bushy plants of it, in 5-inch pots, may be seen in the florists' shops of London, while, what is more, they are sold at a comparatively cheap rate, especially when the length of time the plants require to reach an effective size, and the care needed in all stages of their culture are taken into consideration. Beside the ordinary *E. hyemalis*, there is a richer-coloured form known as *E. superba*, and a pure white variety named *alba*. It is about 30 years since this last was brought prominently forward, and at that time it attracted a great deal of attention.

Another Heath that will flower freely in the greenhouse at Christmas time is *E. melanthera*, which may be grown into fair-sized bushy specimens. This is one of the least exacting of all the tender Heaths. It is naturally of a dense, twiggy habit, and the tiny blossoms are borne in great profusion. They are of a distinct mauve colour, with blackish anthers, and have a slight but pleasing fragrance.

E. cafra is somewhat in the way of *E. gracilis*, but of dwarfer habit. The flowers are white.

At the commencement of the new year comes *E. Wilmoreana*, a showy Heath, of garden origin, but, like *E. hyemalis*, its early history seems to be unknown. This is followed by the tiny white-flowered *E. persoluta alba*, the bluish-tinted *E. Spenceriana*, *E. candidissima*, with pure-white, tubular flowers, and the yellow *E. Cavendishii*.

MINIATURE PLANTS.—Within the last few years large quantities of tiny little plants in pots of corresponding size may be seen in the florists' shops, and as they can be dropped into the small jardinières, now so popular, they find a ready sale. The soil of these little plants dries quickly, so that they need particular attention with regard to water, but, at the same time, water must not be allowed to stand in the receptacles, otherwise the soil will turn sour, and the plants will perish. Given strict attention, the blossoms remain fresh for a long time. The sorts most amenable to this treatment are *E. gracilis*, *E. cafra*, and *E. persoluta*. *W. T.*



THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen-Gardener, Freeman, & Vd Gardeners, Windsor.

CUCUMBERS.—Plants intended for early spring planting should be raised now. The seeds should be sown singly in small, clean pots, placing them on a mild hotbed in a warm forcing-pit as close to the roof-glass as possible. It will be well to cover the pots with sheets of clean glass as a protection to the seed from mice, but the glass must be removed as soon as the seedlings appear. The soil may consist of fine loam and leaf-mould in equal parts, and the seeds should only be covered very lightly. Good, reliable varieties for this sowing are Dreadnought, Every Day, and All the Year Round. Cucumbers which were planted in September to furnish supplies in the early part of the New Year should now be showing plenty of young fruits, but they should not be allowed to carry more than are required for the needs of the establishment. The fruits should be thinned whilst they are young; overcropping soon ruins Cucumber plants at any time, but especially during January and February. Thin the young growths, training in only shoots which are likely to bear fruit, and remove all decaying foliage. It is important that frequent light top-dressings of fine loam and leaf-mould be applied to the roots in order to keep them in an active condition. Stopping should not be practised so severely as in the summer months. A light dusting of artificial manure may be given occasionally with advantage. In mild weather maintain a night temperature of 70°, and 80° to 85° in the day with sun heat. The walls and floor of the house should be syringed frequently to promote a moist atmosphere, and the plants may be lightly syringed on sunny days. When the fruits are large enough they should be cut and laid on a clean slate slab in a cool cellar, where they will keep in good condition for eight days.

FRENCH BEANS. A sowing of French Beans may be made now to furnish supplies about the middle of February. Seven-inch pots are large enough for this sowing, and they should be filled to within two inches of the rim with a good, rich compost, leaving the remaining space for a top-dressing when extra rooting material is necessary. The compost may consist of three parts turfy loam, and one part well-prepared horse manure, which should be exposed to the air for ten days before it is broken up for mixing with the loam. Seven or eight seeds may be placed in each pot, but after the plants have grown a few inches high they may be thinned, leaving only five healthy plants in each pot. A night temperature of 65° with plenty of atmospheric moisture will suit the plants, which should be placed near to the roof-glass. There are many good varieties of Beans for this sowing, but I prefer The Belfast, a Bean of recent introduction, and a free cropper. The long, narrow pods are gathered whilst they are quite young, and cooked whole for the Royal table.

PARSLEY IN PITS.—Carefully examine the plants of Parsley in pits, removing all decaying foliage. The soil should be lightly pricked up between the rows, and air admitted to the pit both night and day, in order to prevent the plants from becoming drawn. Plants in the open garden should also be kept free from decaying or overgrown foliage, so that the air may circulate freely amongst the plants. Lettuce and other salad plants in pits will also require a careful treatment. Afford an abundance of fresh air, and keep the soil between the plants stirred to maintain a healthy atmosphere.

POTATOS.—The stock of tubers should be examined carefully during wet weather, and the seed tubers selected, placing them in a single layer on shelves or trays. The selecting of the "seed" is a most important matter in the successful cultivation of Potatoes.

ONIONS.—These should be examined, removing all decaying bulbs. Any showing signs of growth should be selected for immediate use. Onions are keeping well this season.

PLANTS UNDER GLASS.

By E. E. BECKETT, Gardener to the Hon. VICARY GIBBS, Esq., Gunnersbury House, Acton, Middlesex.

BEGONIAS. The beautiful Begonias of the *Lorraine* type provide charming and reliable flowering plants during the winter season. At Gunnersbury the prevalence of fogs during the winter season, in conjunction with a smoke-laden atmosphere generally, makes it a difficult matter to grow these lovely Begonias successfully, and we find that the variety *Mrs. Leopold de Rothschild* (see fig. 182) withstands these unfavourable conditions better than any of its class. Others who may be situated in a district where fogs are frequent should give this variety a trial.

in larger pots. Plants rooted late will flower well in 4½-inch pots, and even in 3-inch pots (60s). Before taking them into the dwelling room, immerse the pots in a pail of water so that the soil will keep moist for several days.

ERANTHEMUM PULCHELLUM.—The beautiful *E. pulchellum* is an old plant in gardens, and there is none other better in its colour. The flowers are not strikingly conspicuous, for being blue they do not light up well, but in the stove this *Eranthemum* is one of the best subjects at this season. The taller-growing *E. Andersonianum* has white flowers with rosy-purple veins, and the inflorescences are larger than those of *E. pulchellum*.

by a cold stove. Under these conditions the flowers develop better. After the blooming is over, the plants may be placed again in the greenhouse.

THYRSACANTHUS RUTILANS.—Those who grow these plants should arrange their specimens so that the long racemes are not hidden by other subjects. Small plants raised from cuttings this season will, when in flower, prove useful decorative subjects at this time of the year.

CHRYSANTHEMUM.—If suitable cuttings are available, do not delay the work of propagating Chrysanthemums. Plants developed strong shoots suitable for cuttings early this year; the early kinds yielded very stocky shoots, and we have inserted ours in thumb pots. If no better place is available, they may be rooted in a cold frame, but the cuttings will be longer forming roots than if a little heat was provided. Keep the old stools as hardy as possible in order that the cuttings may be stout and short-jointed. It is possible that the plants of late kinds, which are now in flower, may have suitable cuttings upon them, and it will be better to secure these now rather than let them become drawn. Do not water any plants that are in flower, but rather keep them on the dry side.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

MELONS.—Preparation must now be made for the earliest batch of Melons. The house and its surroundings should be cleansed thoroughly before making the hotbed. Though it is not essential to have hotbeds in houses where ample means for heating exists, they are very desirable, as they promote a quick growth. The manure and leaves should, therefore, be brought into the house and made firm, using long straw manure and oak leaves (for preference) in equal parts. Allow the hotbed to settle before placing the soil thereon, otherwise it will be a difficult matter to make the bed as firm as it should be. Use good fibrous loam, with a sprinkling of wood ashes, soot, and bone-meal, and either mortar rubble or coarse road grit. Be careful not to employ too much wood ash, soot or bone-meal. Sow the seeds in small pots plunged in a brisk bottom heat, and covered with a sheet of glass. As soon as the seedlings appear place the pots near to the roof-glass in a warm house, and water them very carefully. Place a small stick to each plant as soon as a support is needed. Some prefer to pot again into 6-inch pots, and this is an excellent plan to secure strong plants for the earliest batch, especially where it is a difficult matter to maintain a suitable night temperature, or where the position they are to occupy is not available until later.

CUCUMBERS.—It is the custom of many to grow a batch of Cucumbers with the earliest Melons, planting them on the shaded side of the house. These require a much looser rooting medium than Melons. Much less soil is required at the commencement, and this also is best placed over a good layer of fermenting materials. Good, lumpy loam of a fibrous nature, mixed with fresh horse droppings and leaf-mould, will provide an excellent rooting medium. Plenty of space should be allowed for additions of soil as the roots penetrate through the original heaps. Sow the seeds as recommended for Melon in small pots filled with loamy soil that has been warmed. If the soil is used in a suitably moist condition, little water will be required until the seeds have germinated. Where space does not permit of a bed being formed, a plant or two may be grown, and finally potted into large pots, leaving room for top-dressings, and finally tying the growth to the trellis in a warm stove or other house. When the soil in the pots become filled with roots, the plants will need constant waterings with liquid manure on frequent occasions.

POT FIGS. As Fig trees in pots advance into growth increased supplies of water will be needed by the roots. Admit fresh air whenever the weather permits, if only for an hour or two, in the middle of the day, closing the ventilators early in the afternoon, with plenty of moisture



FIG. 182.—A FINE PLANT OF BEGONIA MRS. LEOPOLD DE ROTHSCHILD.

In purer and brighter conditions Begonia Gloire de Sceaux will give a splendid display of blossoms, being unrivalled at this season for indoor decoration. I regret that we are unable to cultivate it at Gunnersbury because of our impure atmosphere. *B. socotrana*, which is the prototype of these winter-flowering Begonias, is also a choice and distinct plant flowering at this season. Besides this, further choice is offered in the beautiful varieties of the semi-tuberous-rooted section, which have been shown so numerous at the recent meetings of the Royal Horticultural Society. Plants of this type are valuable at this season for decorating the conservatory, and they will be found of more use for this purpose than for dwelling rooms. For this latter purpose, those of the *Gloire de Lorraine* type are the best. Choose plants that are in relatively small pots, as these are better able to withstand the changes of temperature in dwelling rooms than specimens

APHELANDRA AURANTIACA ROEZLII.—The bright scarlet colour of the flowers of this *Aphelandra* are not surpassed in beauty by those of any other stove plant which blooms at this season. Those who followed the directions I gave early in the season, and raised a stock of this plant from seed, will have specimens now about to flower. The silvery-grey foliage is very handsome, and combines with the flower to make the plant distinctly beautiful. I have proved it to be an excellent subject for decorating dwelling rooms, specimens having lasted in a good condition, when so employed, for a fortnight in the winter season. I strongly recommend this plant to other growers.

EPHYPHYLLUM TRUNCATUM.—Although *Ephiphyllum* are usually regarded as greenhouse plants, it is an advantage to allow them a little more warmth at this season, such as is afforded

in the atmosphere. Guard against frequent syringings overhead when the weather is dull, but keep the paths and bed of fermenting materials moist, damping the house in the evening. Start other permanent houses as required for successional fruiting, maintaining at first a night temperature of 45°-50° according to the weather conditions. Syringe the plants lightly twice daily during bright weather and, if needed, give the borders a watering. Always admit air on every favourable occasion to sweeten the atmosphere, which is extremely beneficial.

ORCHARD HOUSE.—Forced fruit trees must not be excited in their early stages. Endeavour to maintain a sweet, even temperature, admitting a free circulation of air. Damp the surface of the house, and lightly syringe the trees. Afford water to the roots with great care. When it is needed, see that sufficient is given to thoroughly soak the entire ball of soil.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

DRIP.—This is the season of the year that drip upon Orchids is most injurious, therefore every care should be taken to prevent it. It is desirable to have the houses constructed on scientific principles, providing them with roof bars that will prevent damage by drip condensation, but where such houses do not exist, care should be taken to place each plant where it will not be affected by the drip. Drip does not show its effects upon any plants so soon as one would expect; in fact, some plants may grow freely for a time, but eventually there is deterioration of the plants are not actually killed. Cattleyas, Dendrobiums, and many other Orchids that have completed their season's growth, are kept comparatively dry at the roots to prevent them starting again prematurely, but this care is ineffective if they are exposed to drip. Drip falling into the centre of any young growth in course of development, if not soon detected, may cause it to rot.

ONCIDIUM TIGRINUM. There are very few Orchids in bloom more acceptable at this dull season than this old species. Perhaps its most delightful quality is the sweet scent of the flowers, a few spikes filling a room with fragrance somewhat resembling that of Violets. It is one of the showiest of Oncidiiums, and makes a fine display when mixed with other Orchids. The flowers continue beautiful for a considerable time, but they should not be allowed to remain too long upon the plants. This species succeeds well when given a light, well-ventilated position in a cool intermediate house. After the flowering stage, throughout the resting period, infrequent applications of water will suffice to keep the pseudo-bulbs plump and the roots and foliage in a healthy condition.

CYMBIDIUM.—Such members of this genus, as *C. giganteum*, *C. Mastersii*, *C. Traceyanum*, *C. Winnianum* and *C. Pluto*, are most useful Orchids for flowering during the closing days of the year. They are now in flower, and last a considerable time in good condition either on the plant or in a cut state. Plants of the late-winter and spring-flowering kinds have mostly completed their season's growth, and are pushing forth flower-spikes. The amount of root-moisture needed by Cymbidiums will not be so great as hitherto, water being applied only when the rooting material has dried out.

MAXILLARIA PICTA.—This quaint old Orchid, now in flower, is not remarkable for the beauty of the individual flowers, but for the number of flowers produced from a single pseudo-bulb. This species thrives well in pots that are provided with ample drainage. For a rooting medium pure Osmunda fibre pressed firmly about the roots should be used. The plants seldom get out of health if placed in a favourable position in a house where a cool intermediate atmospheric temperature is maintained.

COVERING THE HOUSES. With winter again upon us, special preparations must be made to exclude frost from the houses. To drive the boiler fires at full speed and heat the pipes excessively is not only wasteful but also in-

jurious to the plants. The need for excessive firing may be prevented by using external coverings. Archangel mats, or specially-prepared canvas, of which there are many qualities on the market, form the best protective materials, and these should be laid over the roofs, covering all exposed glass ends and sides, making them secure against wind. Those used on the roof should be removed in the morning immediately the temperature commences to rise.

THE HARDY FRUIT GARDEN.

By W. HEDLEY, "The Robin," Aston Clinton Gardens, Bucks.

VINES ON WALLS.—It is still the practice with some to prune vines growing on walls out-of-doors during the spring, but the plants are apt to "bleed" if the pruning is deferred until the sap commences to rise; therefore it is better to prune in the autumn as soon as the leaves have fallen, when the vines are practically dormant, with no risk from bleeding. Outdoor vines are apt to become bare of shoots towards the base of the main stem, but judicious pruning will obviate this defect. They are best pruned on the spur system, as the buds then break into growth more regularly, and are more likely to produce fruitful growths than under any other system. Some growers remove the bud nearest to the old wood, and allow the next one to form the fruiting growth, but this practice results in ungainly spurs, which detract from the general neatness of the vine. The usual method of pruning is to shorten the lateral growths to two or three buds, and when these break into growth the following season, to select the best and most suitably-placed shoots for fruiting, rubbing off all the others. This process may be followed for several years, until the spurs become too long, when they may be either cut back to the main stem, from which dormant buds will start into growth, or young canes, arising from near to the base of the vine, may be trained in the place of the older rods.

PRUNING APRICOTS.—The Apricot fruits on shoots of the previous year's growth, and also on spurs arising on the older branches of the tree; in pruning, therefore, retain as much of the young wood and as many branches bearing spurs as may be necessary to fill the allotted space upon the walls. The work of pruning may be done any time during mild weather, from the fall of the leaf until the end of February. Remove old branches that are bare of young wood or healthy spurs either entirely or to a well-placed lateral. The space they occupied should be filled with young and fruitful wood. Cut away all dead or decaying spurs which often are too plentiful in these trees. Reduce the stronger shoots the least of all in proportion to the others—not more than one-fourth of their entire length; in the case of weaker shoots reduce them to two-thirds, and in some instances to one-half of their length. Shoots that are very weak may be pruned to two or three buds. This reduction of the growths will result, generally, in the production of lateral shoots during the following summer from the buds on the lower parts of the shoots, whereas if the branches are not shortened, the new growths would proceed mostly from near to the ends of the shoots, leaving the bottom parts destitute of either fruiting buds or spurs. Always prune to a wood bud, except when it is desired to produce growths nearer the origin of the branch, as before-mentioned. Healthy trees have often fruit-spurs 1 inch or 2 inches in length present on two and three-year-old shoots; such spurs should be retained, especially if there is a deficiency of young wood, but when spurs project for several inches from the face of the wall they should be removed, because, notwithstanding that they may blossom profusely, they often fail to bear fruit of good quality, unless the season is unusually favourable. Thick clusters of spurs, which are often found on very old trees, should be periodically thinned, or if not wanted, cut out entirely. As each tree is pruned the branches should be fixed into position closely and regularly. Apricots are generally trained in fan shape, which is undoubtedly the correct method to adopt, as, when a branch dies, the space can be filled better than in the case of branches trained horizontally.

THE FLOWER GARDEN.

By R. J. BISHOP, Gardener to the Earl of HADDINGTON, K.T., Tynningham, East Lothian.

PRUNING SHRUBS.—Some species of shrubs, whose chief charm at this season lies in the colour of the bark, for example, the Dogwoods and Willows, should not be pruned until late in the spring. Others should have all shoots of a year or more old cut out, in order that the highly-coloured bark of the new growth may show as much as possible. One of the most effective of these is *Rubus alnifolius*. In rich, friable soil, shoots made in a single summer will often measure 12 to 15 feet; but if a highly-coloured bark is desired it is usually necessary strictly to limit the number of shoots on each plant, in order that all may be exposed to the sunshine. The fruit-bearing shoots of the previous year assume a drab hue, and should be cut clean away, being far from ornamental. The effect, when pruning is completed, is most pleasing, especially when the sun brightens the brown stems to a ruddy golden colour. The young stems of *Deutzia Welsiana* and *D. Watereri* assume a pinkish tinge in winter. The older shoots, which flowered in summer, should be cut completely away; partly for the sake of effect, and partly because such excision is always followed by long, healthy fresh shoots. *Stephanandra Tanakae* and *S. flexuosa* have shoots of a ruddy colour, and should be treated in the same manner as the *Deutzias*. *Spartium junceum* may also be thinned now, and also the *Barberry*, with its purple stems and leaves. *Elaeagnus argentea* owes its specific name to the colour of its bark, which is a silvery colour. *Ribes sanguineum*, and other species of *Ribes*, give a pleasing effect in winter, though the stems are not very brightly coloured.

WINTER-FLOWERING SHRUBS.—*Jasminum nudiflorum*, one of our best winter-flowering shrubs, is flowering very unevenly this year; some plants have scarcely any flowers, whilst others are covered with blossoms. Next in order comes *Arbutus Unedo* and its varieties. This is valued not so much on account of its flowers, as for its beautiful berries, which are known as Winter Strawberries. The *Arbutus* forms a small tree, and all the forms are well worthy of cultivation. The *Laurestinus* (*Viburnum Tinus*) is beginning to assume its flowery garb, but it is only in a fine winter that it can be depended on to blossom. The male plants of *Garrya elliptica*, which species is far harder than is usually supposed, are already well furnished with the grey catkins. The decorative effect of the plant is often ruined by improper pruning; all that is needed is a careful thinning of the shoots. The *Rosemary* is in flower now, but this is exceptional, and is due to the unusual mildness of the season. It is a peculiarly spicy-smelling shrub, surpassing even the *Lavender* in this respect, and also in its appearance when not in flower. *Pentanthus nepalensis* occasionally bursts into flower about this time of the year; it is a fine shrub, and is not appreciated quite as it deserves. Of *Heaths*, *Erica carnea* is the best winter representative. The *Vincas* (*Periwinkles*) sometimes yield a few flowers about Christmas time, and even without blossoms they are highly ornamental plants. The glossy foliage of *V. major* and *V. minor* are very attractive, trails of the latter being suitable for the decoration of dinner tables. Associated with *Jasminum nudiflorum* and varieties of *Helleborus*, the *Vincas* form a delightful combination; the pity of it is that many people are superstitious about the pretty *Periwinkles*, believing that when they enter the house, death stalks in behind them.

THE WINTERING OF SUMMER SPORES.

Experiments by a number of different observers demonstrate that the summer spores (conidia) of various parasitic fungi are capable of withstanding the winter and of germinating in the following spring. R. EWERT has shown this to be the case with *Gloeosporium Ribis* and species of *Fusicladium*, and V. PEGLION—working in Italy—demonstrates the same thing for the *Oidium* (conidial) stage of Rose mildew (*Sphaerotheca pannosa*) and for that of *Podospheera leucotricha* (Apple mildew), which winter in the buds of their respective host plants, the Apple and Rose.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, DECEMBER 25—Christmas Day.

TUESDAY, DECEMBER 26—Bank Holiday.

THURSDAY, DECEMBER 28—
Soc. Nationale d'Hort. de France (Paris) General Meet.

AVERAGE MEAN TEMPERATURE for the ENSUING WEEK deduced from observations during the last Fifty Years at Greenwich 38°°.

ACTUAL TEMPERATURES—
LONDON:—Wednesday, December 20 (6 P.M.): Max. 52°; Min. 46°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, December 21 (10 A.M.): Bar. 29.9°; Temp. 48°; Weather—Raining.

PROVINCES:—Wednesday, December 20: Max. 50° Cornwall; Min. 44° Yorkshire.

Variation in Natural Species. It is much to be desired that systematic botanists should encourage some of their younger members to take up the study in the field of the variations presented by our common plants. For it is a remarkable fact that our ignorance of this most important matter is still very considerable. Detailed knowledge of the varieties of a given species is valuable alike to the systematist, to the student of genetics, and to the practical horticulturist. Lack of such knowledge leads to mistaken ideas, not only of species, but also of the rôle of the plant-breeder in "creating" new varieties. It is hardly an exaggeration to affirm that many scientific botanists still contemplate a wild species as one composed of an assemblage of identical, or essentially identical, individuals. They acknowledge the existence of varieties, but very rarely, if ever, realize the extent of the variation which exists among the members of a species. Hence it is that variation comes to be associated in the minds of many botanists and horticulturists with cultivation, and fixity of type, with a state of nature. The only means of determining whether this tacit assumption is true or false is for systematic botanists or other trained observers to turn their attention to this much neglected field of observation and to ascertain once for all the nature and extent of the variations which occur in natural species.

It may be that this branch of study has fallen into neglect owing to the idea that variations are small and trifling matters which represent rather the vagaries of the individual than the properties of the species.

Yet the most superficial study of records

of horticulture shows that species exhibit quite marked and no doubt, in many cases, constant variations. Thus anyone who reads Mr. Dyke's contributions on Irises, which appear from time to time in this journal, discovers that well-marked varieties of the various species of Iris are not uncommon in the native, uncultivated plants. Similarly the same fact comes out with striking clearness from Mr. R. Farrer's observations on Alpine plants and particularly on the Primulas. Whence we may naturally conclude that directly we leave the laboratory or the garden and proceed to the study of plants in their native haunts we shall find that they are characterized by well-marked, and in many cases, constant differences, and we shall, without doubt, obtain a fund of information which will prove invaluable in the study of the origin of cultivated plants. Information on the subject of the actual extent of variation in wild species is of particular value at the present time. The student of genetics is busily engaged in working out the relations of the varieties of cultured plants with one another. He has demonstrated, for example, that these varieties are due in many cases to the recombination of characters which occur in parent forms. As the result of his experiments the plant-breeder may be able presently to predict the forms are to be met with naturally. This, even if achieved, does not absolve the systematist from the scientific duty of ascertaining the extent and kind of variety of form presented by given species of plants in their natural state.

In urging the necessity for this work on the systematist we are not forgetful of the fact that he has other work to do, that it is impossible and perhaps undesirable that all systematists should vex their souls with variation; nor are we unaware of the considerable amount of investigation of variation which has been done already. What we wish to emphasise is that with the rise of genetics this study of variation has become at once of primary and obvious importance. Before Mendelian discovery, it seemed an almost hopeless business to take up the study we are now advocating, and yet even at that time, it is to be remembered that by working in this field Bateson was the first to establish on the sound basis of observation the pregnant fact of discontinuity in variation.

Let us give a few examples to illustrate our ignorance of the range of variation among common species. The sinensis form of Chinese Primula is dominant to the star form. Which is the native form? We know that the star form occurs wild for both Henry and Wilson have described it. Is the sinensis form a product of cultivation or does it also occur in nature?

Again, what is the range of colour in the Primrose and in the Cowslip? If Polyantuses are derived from Primrose and Cowslip it is in the highest degree likely that colour forms of either the Primrose or the Cowslip—and probably the latter—occur naturally. We have, it is true, the blue Primrose, but who knows definitely its origin?

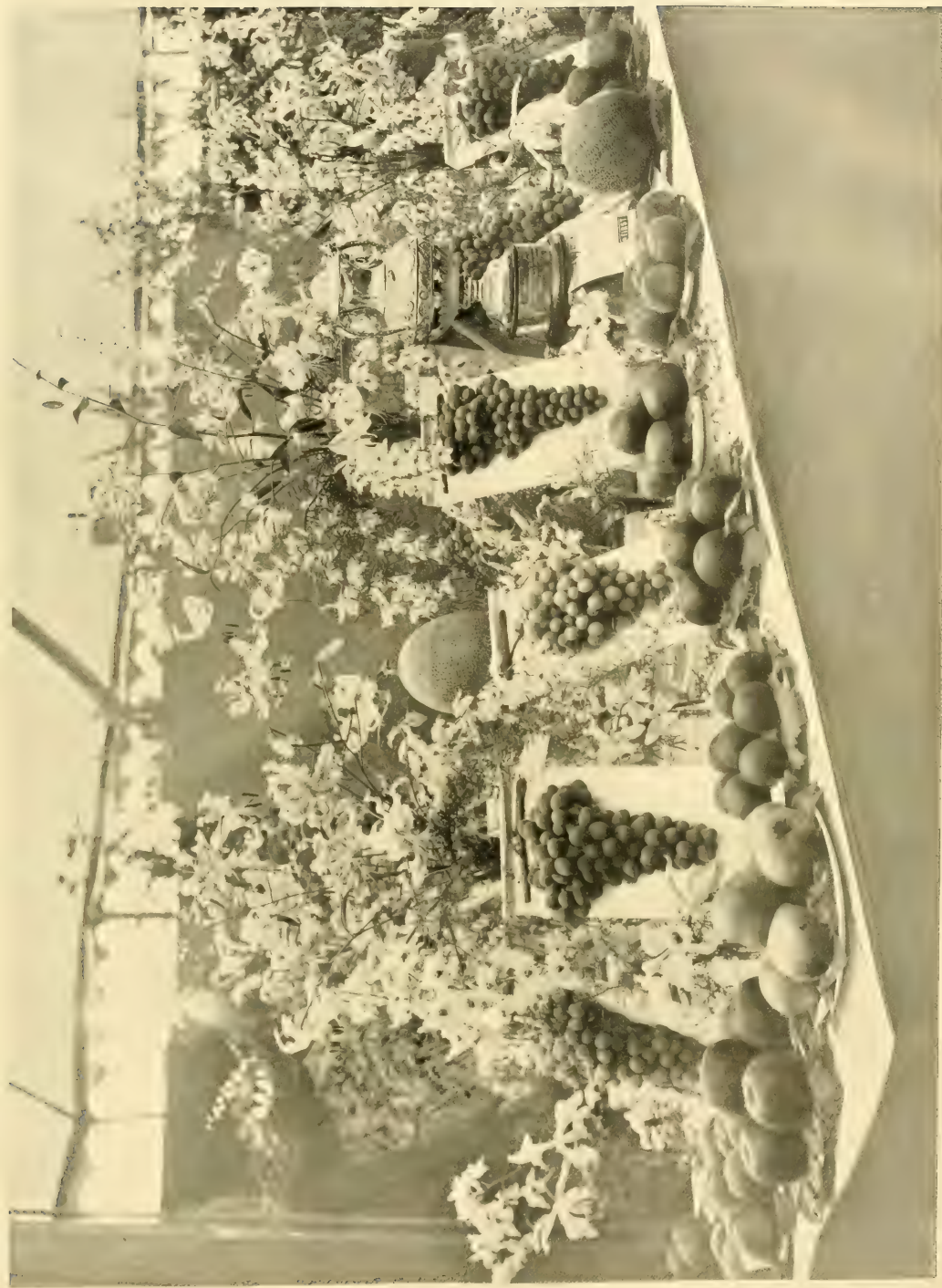
Of recent years Prof. Baur and Miss Wheldale have each independently made remarkably complete Mendelian analyses of the complex colour-variations of the multitudinous garden races of Snapdragon (*Antirrhinum majus*). What do we know of the range of variation in *Antirrhinum majus* as a wild species? Only that this plant is pleomorphic and occurs in two distinct colours, purple and pale yellow. Are these the only colour-forms which occur naturally? If so, what are their "colour constitutions," and still more important—why are these the only naturally occurring colour-forms? The term "struggle for existence" has become a sort of scientifically pious expression and we do not know at the present day, despite of reams of printed paper and of interminable speculations, how far the struggle for existence is playing a part in evolution.

The practical horticulturist is less concerned with origins than with accomplished facts. He obtains a new form of garden flower and is rightly content with the fact that it is his—though, unfortunately, his reward is by the nature of the case only too frequently disproportionate to his labours—but the scientific horticulturist wants to know the origin of the new plant, and who can tell him? The raiser forgets through lapse of time or discretion, or perhaps never knew with certainty. Thus it is that mystery veils the origin of many of our cultivated garden plants. One contribution toward the replacement of this mystery by knowledge is to be made by a survey of the range of variations in those natural species which are known or suspected to have been concerned in the making of garden varieties.

OUR SUPPLEMENTARY ILLUSTRATION

represents a table of choice fruits exhibited in August last by the Duke of WESTMINSTER, Eaton Hall, Cheshire (gr. Mr. N. F. Barnes), at the show of the Shropshire Horticultural Society in the class for decorated fruit tables. It was generally conceded by the fruit-growers present on that occasion that the exhibit taken collectively was one of the very best of its kind ever seen at a public exhibition. The dishes were as follows, and the number of points obtained for each dish is appended:—*Apples*: Cox's Orange Pippin, 6; Emperor Alexander, 6; Gascoyne's Scarlet Seedling, 6; Cox's Orange Pippin, 6; *Cherries*: 4. *Pears*: 6. *Grapes*: Muscat of Alexandria, 9½, 9, 9, 8½; Chasselas Napoleon, 5½; Appley Towers, 7½, 8½; Madresfield Court, 9, 8½, 8, 8. *Melon*: 6, 6, 7, 7. *Nectarines*: Humboldt, 7½, 7½; Pineapple, 7½, 7½. *Peaches*: Belle Baucé, 7; Dymond, 7; Royal George, 7½, 7. *Pears*: Doyenné du Comice, 7; Marguerite Marillat, 6½, 7½; Triomphe de Vienne, 7. *Plums*: Transparent Gage, 5. Beauty of flowers and foliage, 6. General arrangement for effect, 5½. The total number of points that was possible was 324, and the points actually awarded 278½.

THE GALTON LABORATORY.—The London University Gazette announces that the response to the appeal for the proper housing of the Galton Laboratory of Eugenics (University College), to the needs of which reference was made recently in these pages, has resulted in donations amounting to £2,629.



A DECORATED TABLE OF CHOICE FRUITS EXHIBITED BY HIS GRACE THE DUCHESS OF WESTMINSTER.

NATIONAL CHRYSANTHEMUM SOCIETY.—The great autumn exhibition of this society will be held next year, as usual, at the Crystal Palace, the dates being Tuesday, Wednesday, and Thursday, October 29, 30, and 31. These early dates are necessitated because the Receiver of the Crystal Palace has received permission from the High Court to make fixtures up to the end of October only. The committee are, however, making arrangements for the holding of a supplementary exhibition at Essex Hall on Wednesday, November 20, and a meeting of the floral committee and conference will be held on the same day. The annual meeting will be held on February 5 at Carr's Restaurant, Strand.

BIRMINGHAM HORTICULTURAL SOCIETY.—This society is the Handsworth Horticultural Society under a new name, the fresh title having been suggested by the recent absorption of the town of Handsworth into the City of Birmingham. W. H. BOWATER, Esq., the Lord Mayor of Birmingham, has consented to become the first president of the society, and the committee are anxious that the flower show shall be a great success. The secretary is Mr. W. G. CARRADINE, 84, Hamstead Road, Handsworth.

THE LATE SIR JOSEPH HOOKER.—The funeral of Sir JOSEPH HOOKER, O.M., took place on Friday, the 15th inst., at Kew. The service was conducted in the parish church, and the mourners included Lady Hooker (widow) and other members of the family, Sir WILLIAM HEDDERLEY, Sir ALGERNON and Lady RÜCKER, and Dr. TRAIL. There were also present Sir OLIVER LODGE, Sir NORMAN and Lady LOCKYER, Sir ARTHUR CHURCH, Sir ARCHIBALD GEIKIE, Sir JOSEPH LARMOR, Sir JOHN ROSE BENDIS, Mr. R. B. BRYCE, Mr. FOUR, Regius Keeper of the Royal Botanic Gardens, Edinburgh, Dr. C. H. READ, President of the Society of Antiquaries, Dr. D. H. SCOTT, President of the Linnean Society; Dr. B. DAYDON JACKSON, Secretary of the Linnean Society; Professor W. W. WATTS, Professor J. W. JUDG, Mr. W. E. DARWIN, Mr. E. M. HOLMES, Sir DANIEL MORRIS (representing the Royal Horticultural Society), Mr. Harry J. VEITCH, Professor F. O. BOWER, Glasgow University, Mr. E. G. BAKER (Natural History Museum), Lieut.-Colonel PRINCE, Professor Sir GEORGE DARWIN, Dr. FRANCIS DARWIN, Professor S. H. VINES, Mr. G. CLARIDGE DRYCE, Professor F. W. OLIVER, Mr. A. HENRY, Reader in Forestry, Cambridge, Dr. A. GUNTHER, Mr. F. GUNTHER, Mr. A. H. LYELL, Captain FRANCIS H. LYELL, Dr. G. S. BOULGER, Dr. D. OLIVER, Mr. R. HENDERSON, Mr. J. R. DRUMMOND, Dr. F. N. GAMBLE, Mr. J. R. WILSON, Mr. G. GORDON, Mr. C. H. CURTIS, and the curators and staff of the Royal Botanic Gardens, Kew.

STUDY OF FRUIT DISEASES. An important announcement with regard to the proposed establishment of a Government institution for the study of fruit diseases was made during the fruit growers' conference at Ashford, on the 11th inst. Mr. DUNSTAN, the principal of Wye College, stated that the Government, under the development grant, proposes to establish an institution for the study of fruit diseases. As it was rumoured that this would be in the west of England, he urged united action to ensure that Kent, as the largest and best fruit-growing county, should have its station. He did not ask that it should necessarily be at Wye College, but promised that if it were placed anywhere else in Kent he would support it energetically. A petition urging the claims of Kent in this matter was signed by many of those present at the conference.

THE INTERNATIONAL INSTITUTE OF AGRICULTURE.—The Rome International Institute of Agriculture is conferring a boon on agriculturists and horticulturists in issuing with such promptness its volumes of agricultural intelligence. Nos. 6 and 7, year 2 (June, 1911) have just been distributed, and contain valuable summaries of the world's work in the various departments of agricultural investigation. In this number, the following matters are treated of:—The Development of Agriculture in Different Countries, Agricultural Physics, Chemistry, Botany, Horticulture, Plant Diseases, &c.

CHINESE PLANTS. "A Supplementary List of Chinese Flowering Plants" is the title of a paper by Mr. S. T. DUNN, formerly Superintendent of the Botanical and Forestry Department of Hong Kong, in the last part issued No. 274, vol. xxxix, of the *Journal of the Linnean Society*. It is supplementary to FORBES and HEMSLEY's *Enumeration*, including the "List of the genera and species discovered in China since the publication of the various parts of the *Enumeration*," compiled by Miss M. SMITH. It is on the same plan, and it is something more than a list, being in reality an index to the places of publication of the additional new genera and new species, and to further records of previously-described species, up to the end of 1910. The last part of the *Enumeration* appeared in 1905. The author states: "Out of the 3,500 citations of flowering plants, about 2,000 are references to first publications of species, while some 700 refer to other published additions to the flora." The remainder consists of records of new localities represented by specimens in the Kew Herbarium.

LECTURES ON GENETICS.—Professor WILLIAM BATESON's lectures, at the Royal Institution, on "The Study of Genetics," will be given on Tuesdays, January 16, 23, 30, February 6, 13 and 20, at three o'clock. A course of five lectures on Genetics is also to be given by Professor KEEBLE in the University of London (Imperial College of Science, S. Kensington), on Fridays, January 19, 26, February 2, 9 and 16, at 4 o'clock.

PROMISING NEW FRUITS IN U.S.A.—The Year Book of the Department of Agriculture for 1910—published during the present year—contains notices of fruit which appear to promise well for extended cultivation in the United States. *Bosc's Apple*, *Golden Apple*, and *Kinnard Apple*—both of which originated in the States, mention is made of Payne Peach (syn. Highland Beauty), which originated as a sport from the stock of a St. John Peach tree in 1901. The Payne Peach is said to be harder than most commercial varieties of its section. A Raspberry (Hoosier) is also mentioned. Hoosier is said to be a good disease-resisting variety. It bears roundish berries, large to very large, in moderately-loose clusters of 15 to 18, flesh dark purplish-red, firm, moderate, juicy, seeds rather large, hard; flavour sub-acid, with pleasant aroma; quality good. The article is illustrated by admirably-printed colour plates.

THE "WHITE" MEDAL.—The Trustees of the Massachusetts Horticultural Society have awarded the George Robert White Medal of Honour for the current year to M. VICTOR LEMOINE, of Nancy, France, who has since died (see p. 465). This medal is awarded annually to the person who has done the most during the year or in recent years to advance the interest in horticulture in its broadest sense. The award for the year 1911 is eminently appropriate as a recognition of the accomplishments of M. LEMOINE in the production of so many varieties of flowering plants and

shrubs which have become of permanent value to the horticultural interests of the United States and of Europe. This is the third award of the medal, which was founded by Mr. WHITE in 1909. It will be remembered that the first recipient of the medal was Professor CHARLES SPRAGUE SARGENT, Director of the Arnold Arboretum, Boston, U.S.A., in 1909, and the second Mr. JACKSON TREVENANT DAWSON, also of the Arnold Arboretum.

COLD STORAGE OF MUSHROOMS.—Experiments described in the *Revue Generale du Proid* (June, 1911) demonstrate that after a month's cold storage Mushrooms undergo no deterioration, either in appearance or in nutritive quality; in fact, cold-stored Mushrooms could not be distinguished from those picked for a day or two and left in the open air.

A SEEDLING PELARGONIUM.—Messrs. H. CANNELL & SONS, Swaleby, have forwarded a truss of a new seedling zonal-leaved Pelargonium with blooms measuring 2½ inches across. The petals are of a pleasing cerise colour. The truss is not only of large size but of excellent form.

A PRUNING COMPETITION. The good work done by the Madresfield Agricultural Club was described by Mr. OWEN THOMAS in our issue for December 9. The society recently held its annual pruning competition, when prizes were offered for the best work in three classes. Nineteen competed in the class for present and past pupils of the Club, or students of the Worcestershire County Council, under the age of 25 years, when the 1st prize was awarded to Mr. H. J. PARSONS, Callow End. Mr. ERNEST GARDENER, of Bransford, was successful in the similar class for those above the age of 25 years, whilst Mr. JOSEPH KITCHING, Madresfield, excelled in the open class. In addition, each of the pupils was presented with a new pruning knife. The judges, in declaring their awards, congratulated the club on the work being done by these classes and competitions, not only for the district but for the country at large, and expressed their great satisfaction at the high standard of general excellence attained by the competitors.

A REMARKABLE APPLE TREE.—According to the *Morning Oregonian*, of Portland, U.S.A., states the *Florists' Exchange*, a seedling Apple tree was sold on October 13 for 600 dollars. The tree was a rather seedling which grew up in a fence corner on the farm of Mr. DAVID E. JUNKIN, 10 miles south-east of Albany. It is now 10 years old, and for several years has borne ripe fruit from May to November of each year, having blossoms, green fruit and ripe fruit all on its branches at the same time during the summer. The Apples are stated of good quality. The tree was bought by a nursery company, which is to have all its products for 10 years. The tree will be left in its present situation and the company will utilize it in securing buds and scions for purposes of propagation.

SCHEDULE OF CLASSES FOR HARDY PLANTS AND FLOWERS. The National Hardy Plant Society has compiled a model schedule of classes for hardy plants and flowers, with a view to helping committees of horticultural societies in the task of providing suitable classes for these subjects. There are separate lists for spring, summer and autumn shows, and these are calculated to provide hints to committees that will save them considerable trouble. Copies may be obtained, post free, from Mr. FRANK BOUSKELL, Market Bosworth, Nuneaton.

CARNATION WHITE CHIEF.—This variety of perpetual-flowering Carnation, referred to on p. 420 as being of American origin, was raised by Mr. H. BURNETT, St. Margaret's Vineries, Forest Road, Guernsey.

LEAF CURL OF POTATOS.—The most recent researches into the nature of this obscure disease indicate that it is the result of the attack of a fungus, probably a *Fusarium*.

THE OFFICE OF WOODS AND FORESTS.—From the 89th report of the Office of Woods and Forests it appears that the income derived from the woodlands under its control—in which are included the New Forest and Windsor—is £26,320, and that the outgoings amount to £26,313. The good balance gives plentiful cause for reflection.

THE HERBERT SPENCER LECTURER, 1912.—The University of Oxford has invited Professor WILLIAM BATESON, Director of the John Innes Horticultural Institution, to deliver the Herbert Spencer lecture in 1912. The subject of the lecture, which will be given on Wednesday, February 28, is "Biological Fact and the Structure of Society."

A NEW TROPICAL FRUIT. The number of edible plants which grow in sandy situations in tropical regions is so small that any addition to the group deserves notice. According to the *Boletín de la Sociedad Agrícola Mexicana*, the Cucurbitaceous plant *Acanthosicyos horrida*, which grows among the dunes of Walfish Bay (South Africa) produces a fruit which forms a staple article of diet among the Hottentots of the German colony. Its extremely long root system enables it not only to exist in sandy soils, but to produce a fruit of from 2 lbs. to 3 lbs. in weight. The fruit is green, with a pulp which is at first bitter, but which becomes sweet and nutritious when ripe. Commenting on this fruit, the *Journal d'Agriculture Tropicale* (No. 125, November, 1911) suggests that experiments should be made in the cultivation of the plant in the Sahara and other dry and sandy regions of hot countries.

THE COLSTOUN PEAR.—The Earl of DALHOUSIE is the life custodian of an alleged magical heirloom, known as the Colstoun Pear. The *Edinburgh Dispatch* tells the story. In the year 1250 the daughter of HUGO DE GIFFORD, believed to be in league with Satan, and thus known as the WARLOCK o' GIFFORD, married a neighbour, BROWN, of Colstoun, in the chapel attached to the WARLOCK's stronghold, Yester Castle. As his child's dowry the WARLOCK plucked a Pear from a tree and handed it to the young couple, giving them the assurance that so long as the fruit was preserved intact their descendants would prosper. The BROWNS, true to the WARLOCK's prediction, flourished down to the reign of CHARLES I. Then a BROWN old maid was imprudent enough to try her teeth on the Pear. The result was that her people became involved in unsuccessful litigation, and had to dispose of a couple of the best farms on Colstoun Estate to pay expenses. CHRISTIAN BROWN, the heiress of the late BROWN, of Colstoun, married, in 1805, the ninth Earl of DALHOUSIE. Thus her husband's family obtained possession of the heirloom, which is kept in a silver box of quaint make nearly as old as itself.

PLANT COLLECTING IN THE CHINESE ALPS.

—The following is an extract from a letter sent home by Mr. F. KINGDOM-WARD, who has been collecting for Messrs. BEES LTD., and is now on his way home. It will be seen that Mr. WARD indicates the altitude of most of the new plants discovered. "The subjoined list of plants I confidently believe to be first-class; seeds of all these are now collected:—1, *Meconopsis* (Cambridge blue, tall, 17,000 feet); 2, ditto (Oxford blue, tall, 14,000 feet); 3, ditto (Oxford blue, dwarf, 6 inches or less, 17,000 feet); 4, ditto (yellow, tall, 15,000 to 14,000 feet); 5, *Primula*

(blue, dwarf, 1 to 2 inches or less, 15,000 feet); 6, ditto (blue, tall, bell-shaped corolla, 16,000 feet); 7, ditto (blue, small, 13,000 feet); 8, ditto (brilliant crimson, rocks, large corolla, 17,000 feet); 9, ditto (red flowers in umbels, 13,000 feet); 10, ditto (mauve, small, 14,000 feet); 11, ditto (mauve, tall, 14,000 feet); 12, ditto (crimson, marsh, 12,000 feet); 13, ditto (pink, tall, 12,000 feet); 14, *Ranunculaceæ* (violet, on rock, 14,000 feet); 15, ditto (pink shade, 13,000

also six large white Anemones. We shall also add the following plants:—1, *Lilium* (gigantic, white, 12,000 feet, forest); 2, ditto (pink, 14,000 feet); 3, *Primulas* (one striped yellow and orange, one mauve); 5, ditto (violet). By the way, should my Cambridge-blue *Meconopsis* prove to be a new species, may I suggest that it should be called *M. Cantabrigiensis*? It is the only flower I remember ever to have seen that is a true Cambridge blue without being



FIG. 153.—*EPATHODEA CAMPANULATA* IN SAJJAN NIWAS GARDENS, UDAIPUR.

(See p. 459.)

feet) I already have seeds of pink, yellow and crimson species of *Scrophularinæ*, *Senecio*, *Epilobium*, *Saxifragas*, *Corydalis*, *Pæonia*, *Iris* and *Potentillas*. The following is a list of specimens of which I may reasonably hope to get seeds:—1, *Saxifraga* (golden, large flower, 14,000 to 15,000 feet); 2, ditto (golden, small flower, 14,000 to 15,000 feet); 3, *Campanula* (blue or mauve, twiner, 12,000 feet); 4, *Gentiana* (blue, large, 14,000 feet); 5, ditto (blue, small, 15,000 feet);

washy. Every time I travel, every time I camp in the mountains, I come in for the dregs of the original 'deluge,' and no doubt it is partly this, partly the altitude, and partly the rapid changes of temperature which have upset me during the last month. My work has not so far been interfered with, however, and I think I can hang on for two months. I am crossing to the Yangtze shortly to try and find the small scarlet *Primula* in seed. I have got six or eight kinds of

Roses and more species of *Rubus Rhododendrons* are not satisfactory. I have not seen more than half-a-dozen species in flower. Have had no letters from him later than May 31, and no news, though the people here persistently state that we have annexed Western Tibet. However, there are no more rumours of extermination, so I shall carry out my programme. The official honoured me with another visit the other day, and I told him how the official at Ya-kalo had treated me. He lets me go anywhere now, and since I returned the last soldier he gave me with thanks, is not trying to spy quite so much, but I anticipate a row over the Salween business. To my previous list may, I think, be added the following plants, recently acquired:—*Primula* (flowers purple, small tubular in a capitulum; another (flowers blue). Both are so badly attacked by fungus that they hardly do themselves justice here, but I think that they will prove first-class in cultivation.) *Omphalodes* (blue) and another species of *Boraginaceæ* (ditto)—both small but splendid blues, and a *Larkspur* of the most wonderfully vivid blue I have ever seen in flower, sea or sky. The *Cassalpinia*, noted south, had no red in it; will try and procure seed. Have seen nothing of your black *Rhododendron*, but found a magnificent crimson Alpine Rose (*Azalea*) on the summit of the Mekong-Salween, which I hope to secure. Another good plant I have just got is a twining *Cucurbita* with large sulphur-yellow flowers, an annual. The weather is at last clearing up. A few days ago I was in the forest enveloped in clouds of rain when a big black bear stood up 10 yards from me. *F. Knapton Wood.*

PUBLICATIONS RECEIVED.—*Journal of Genetics*, No. 4. November. (Cambridge: University Press.) Price 10s. net.—*The Smalholder's Year Book, 1912*. (London: C. Arthur Pearson, Ltd.) Price 1s.—*The Journal of the Royal Horticultural Society*, vol. xxxvii., part 2, December, 1911. (London: R.H.S. Office, Vincent Square.) Price to Non-Fellows 5s.—*Commercial Rice Culture*, by Eber Harber. (New York: A. L. De La Mare Printing and Press, Inc.) 124 and Lowtham, Notts. A & C. Pearson.) Price 6s., post paid.—*The Journal of the Board of Agriculture*, December, 1911. (London: E. Clay & Sons.) Price 3s.—*Reversible Sex-mutants in Lychnis Dioica*, by George H. Shull, and *The Genotypes of Maize*, by George H. Shull. (New York: Station for Experimental Research, Cold Spring Harbor.) Price 1s.—*THE DAY GARDENING SERIES*, by R. Hooper Pearson. Vol. X. *Roses*, by H. R. Dardington. (London and Edinburgh: T. C. & E. C. Jack.) Double volume, price 2s. 6d. Special presentation edition with cover design in cloth gilt top, price 3s. 6d.—*The Farm and Garden Ra'e-book*, by L. H. Bailey. (London and New York: Messrs. MacMillan & Co.) Price 5s. 6d. net.—*Fleurs des Champs et des Bois*, by Henry Correvon. (Geneva: Albert Kundig.)—*Roses and Rose Gardens*, by Walter P. Wright. (London: Hcadley Brothers.) Price 12s. 6d. net.

SPATHODEA CAMPANULATA.

When in full flower, as was the specimen from which the photograph is reproduced (fig. 183), *Spathodea campanulata* is a superb sight. The campanulate tube of the flower is 3 inches in length, and the corolla is of a deep scarlet colour. *Spathodea* is a subject for greenhouse cultivation. This genus of the Bignoniaceæ includes various species which form large trees in tropical Asia and America. In the province of Siam, the tree is cultivated for its wood, and the branches and roots of *S. Rheedii*, and stain the nets with a dye extracted from the root of the same species. The photograph was kindly sent us by Mr. T. H. Storey, Superintendent, Sajjan Niwas Gardens, Udaipur, India.

CITRUS MEDICA.

THE accompanying photograph (see fig. 184) represents an exceptionally large fruit of *Citrus medica* and an ordinary shop Lemon for comparison. The former fruit was sent to Kew by Mr. F. G. Sly, Director of Agriculture, Nagpur, Central Provinces, India, and it was grown in the Government Gardens there. It weighed 7½ lbs., and was a foot long and 7 inches in diameter. *Citrus medica* is a very variable species, both as regards its leaves and its fruits. It includes the Lime, the Lemon, and the Citron, the large-fruited, sometimes "fingered," varieties belonging to the last-named. Firminger limits the name of *medica* to this big-fruited tree, which is known in India as the Citron or "Beg-Poor." It is well known for its great size, as well as for its dense, spongy rind, from the external portion of which an excellent preserve is made. The three big-fruited varieties he describes are:—

1. The common Citron, of the size of an ostrich egg, or somewhat larger, much knobbed and warted.
2. A Citron of enormous size, fully a foot or more long. This, seemingly, is the kind known in Europe as "Poncire."
3. The fingered Citron, resembling a man's hand with the fingers bent up with cramp.



FIG. 184. FRUIT OF *CITRUS MEDICA* AND (ABOVE) AN ORDINARY LEMON TO SHOW PROPORTIONATE SIZE.

"Maloon," of Woodrow's *Gardening in India*, appears to be this No. 2 or "Poncire." Woodrow describes "Maloon" as a low-spreading shrub, bearing fruits attaining 4 lbs. in weight, of an oblong shape, irregularly ridged and wrinkled, the surface smooth with prominent convex oil glands and a small papilla at the stigma end. The skin, 1½ inch in thickness, is firm and solid, enclosing 10 carpels, having a pale coloured pulp between very strong endocarpal layers, and with scanty bitter acid juice and about 100 seeds, which are small in proportion to the size of the fruit, but generally contain several embryos, as in many other seeds of this genus.

There is a great difference between this fruit and Metford's Lemon, of which there are fruiting examples at Kew (see *Gardeners' Chronicle*, April 23, 1900, fig. 86). The fruit in this case closely resembled an ordinary Melon, whereas that now figured might easily be mistaken for a yellow, warty Vegetable Marrow. A Lemon weighing over half a stone may be regarded as somewhat of a novelty. These varieties are said to be reproduced from seeds. We have proved this at Kew in the case of Metford's Lemon. *G. H.*

SCOTLAND.

THE CLASHING OF SCOTTISH CHRYSANTHEMUM SHOWS.

This year no fewer than four Scottish Chrysanthemum shows were held on the same date, namely, November 24, when the annual Chrysanthemum shows were held at Aberdeen, Dundee, Dunfermline and Hawick. It is difficult to avoid this drawback to the Scottish Chrysanthemum season, as it is comparatively short, and it is expedient to have the exhibitions at the end of the week. Yet surely an effort should be made to keep the Aberdeen, Dundee and Dunfermline shows on different dates. Hawick is further away and will interfere but little with the exhibits at the others.

The Dunfermline show promises to take a leading position, as it is subsidised by the Carnegie Dunfermline Trust, under whose auspices the display is held. The prize money is larger than at most other Scottish provincial shows, and therefore the Dunfermline one attracts a larger proportion of exhibitors than the others. This has undoubtedly reduced the exhibits at the Dundee show.

EDINBURGH PUBLIC GARDENS.

At a meeting of the Edinburgh Parks Committee, held on November 30, a representation

of great importance was made to the committee by Mr. J. W. M'Hattie, the superintendent of parks respecting suggested improvements in the East Princes Street Gardens. These, with the relative plans, have been remitted for further consideration. The proposals have been prepared by Mr. M'Hattie. The first, or "Scheme A," refers to the fact that the growth of the trees has caused the present flower-beds to look shaded and overcrowded, and that 14 larger and less formal beds should be substituted for the 54 at present existing. This would allow of more grass between the beds, and would also remove the overcrowded appearance. It is also suggested that the lawn next the railway be formed into a garden with 13 flower-beds, and that the present border next the North British Railway be widened from 10 to 30 feet. This would hide the railway much better than at present. It is added that the cost of annual maintenance would remain the same, and that no increase of the staff would be required, the alterations being made by those at present employed.

"Scheme B" is specially noteworthy from the fact that it embraces the removal of the present railings between Princes Street and the gardens,

a watering of the footpaths, and the division of the flower garden into four sections, each being laid out in beds and a low fence surrounding each section. Two fountains are also proposed, and it is suggested that the lower part should be treated as in the preceding scheme. The cost of this is estimated at £456, the annual expenditure remaining the same—£675.

THE WAGES OF EDINBURGH BOTANIC GARDENS EMPLOYEES.

THE dissatisfaction which has for some time prevailed regarding the remuneration of the employees at the Royal Botanic Gardens, Edinburgh, has found expression in a memorial which has been sent by the members of the Edinburgh Royal Botanic Gardens employees Union to Earl Beauchamp, the First Commissioner of his Majesty's Board of Works. The memorial points out the disparity between the wages in the Edinburgh Botanic Gardens and those paid in London, although the rate of living is not less expensive in Edinburgh. It is, for example, said that the young men in the gardeners' and foresters' departments receive 21s. per week; skilled labourers, 24s.; and unskilled labourers, 21s. The park keepers are paid from 22s. to 25s. weekly. Their request in 1910 for a reconsideration of their wages has not received attention. Another point made is that only about £100 of the grant for patrols, amounting to £325, was spent in 1910.

LEGACIES TO GARDENERS AND FORESTERS.

By her will and various codicils, the late Countess of Seafeld bequeathed legacies to several of the gardeners and foresters who might be in her employment at the time of her death. Among the legatees mentioned was Mr. Johnstone, gardener at Castle Grant, £100. To the following foresters sums of £200 each were left:—Messrs. Jas. Ward, Keith; Jas. Mackenzie, Cullen; John Blacklaw, Portsoy; John Stuart, Castle Grant; John Stephen, Abernethy; R. Mackinnon, Duthil; John Bryson, Rothes, and Wm. M'Bain, Glen Urquhart. Lady Seafeld also left to the outdoor servants, including the head gardeners and head foresters, who had been in her service for 10 years a year's wages, and to those with less than 10 but more than five years service, half-a-year's wages, this being in addition to any separate bequests as above.

A NEW ROCK GARDEN.

THE cultivation of rock plants is spreading in Scotland, and in many places extensive rock-gardens have been constructed recently, including one on the estate of Sir Alexander M'Robert, Douneside, Tairland. The work has been carried out by the firm of Messrs. James Backhouse & Sons, York. The Douneside rock-garden includes a winding streamlet and several miniature ponds, with connecting rills, whilst the pathways have been so arranged that the plants may be inspected without inconvenience. *Correspondent.*

RAVENALA MADAGASCARIENSIS.

RAVENALA MADAGASCARIENSIS has the appearance of a gigantic fan, the leaves being all in one plane. This noble tree has been called by the French, the Traveller's Tree, on account of the water which is stored up in the large cup-like sheaths of the leafstalks, and which is sought for by travellers to allay their thirst. The broad leaves are used as thatch in Madagascar to cover the huts. The seeds are edible, and the blue pulpy aril surrounding them yields an essential oil. The blades of the leaves are oblong in form, and are larger in size than those of any known plant, being simple, with the exception of *Victoria regia*.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

ONE REASON WHY JOURNEYMEN GARDENERS APPEAR TO BE DETERIORATING.—I hardly think that *Journeymen* is correct when he attempts to give a reason for the deterioration of journeymen. His reason, which practically amounts to this, that the journeyman has too much work to do, is, I think, puerile. I have had a number of journeymen under me during the last few years, and I think many head gardeners will bear me out when I say that there is a remarkable difference in the work done by

then perhaps receive only a bare living wage, prevents many good men from joining the profession. The liking for work near a town is, I think, another reason, many gardens being so far in the country. Then there are many inducements held out to young men to emigrate, and it is nearly always the best who go. I know one garden where three good men left in less than three years to join the Metropolitan Police Force. I think these are more likely to be some of the reasons why journeymen appear to be deteriorating, as the best and most energetic men will not join the ranks of gardeners, which leaves a lower grade of man for the service of the profession. That there are good journeymen yet to be had, I should be the last to deny, but I



FIG. 185.—RAVENALA MADAGASCARIENSIS (TRAVELLER'S TREE) AT NEBONG TEBAL, STRAITS SETTLEMENTS.

journeymen passing through the same garden. One man will do the work well, and always have things tidy and in order, and perhaps the next journeyman who follows him is always in a muddle, work always behind, and consequently never so well done. One man is methodical and painstaking, and keeps to his work. The other has a "don't care" bearing and never loses a chance of standing about and of talking. I think some of the reasons why journeymen appear to be deteriorating is due to choice of other work. The low wage paid in many gardens, and the years which so many men have to wait before they can obtain a head place, and

am sure that these would be the last to complain about too big a charge. There are doubtless other reasons than I have stated for the deterioration, but the one advanced by *Journeymen* should be the last to enter one's mind. *Head Gardener.*

A GARDENERS' DINNER.—Mr. Dean's proposal (p. 442) to have another gardeners' dinner, on the occasion of the International Horticultural Exhibition, next May, will doubtless be welcomed by many gardeners who enjoyed the very pleasant evening which the committee arranged for us a few years since. A gardener's life is a

very isolated one in most instances, he has but few occasions when he can meet his fellow workers in the profession. But the selection of Saturday is very unfortunate because few gardeners at a distance from London will be able to attend on that day. If it cannot be arranged earlier in the week, it will be chiefly for those who are living in the neighbourhood of London. *W. H. Davies, Belmont Castle Gardens, Great Ham.*

CARBON-DIOXIDE.—While not being in a position at present to publish the results of my experiments on the question as to whether an artificial supply of carbon-dioxide to plants growing in somewhat abnormal conditions in the English climate is beneficial or otherwise, it may interest your readers to know the nature of the results of the preliminary stage of the experiments. It was necessary in the first place to know what amount of carbon-dioxide was present in the house at different times of the day and in various conditions; therefore, in March last, I decided upon making an experiment in an early viney: it is a modern, spacious house, and at this time of the year the vines were growing vigorously, the roof being completely covered with large, healthy foliage.

Date.	Time.	Weather.	Inside Temperature.	Outside Temperature.	Inside Carbon-dioxide per cent.	Outside Carbon-dioxide per cent.
Mar. 1	9.30 a.m.	B. 41	75°	45°	0.127	0.098
" 11	11.30 a.	B. 41	88°	41°	0.070	0.039
" 11	3.0 p.m.	"	90°	29°	0.104	0.038

(1) The house was open but not shut; (2) the house was closed at 1 p.m.

All the determinations were made in duplicates, and the pairs agreed exactly. In determinations of this kind, many complications are encountered, such as difference of temperature, pressure, tension of aqueous vapour, &c., the atmosphere in the house being saturated with moisture, but all these were allowed for, and the results calculated on the basis of normal temperature and pressure. I was somewhat surprised at the results as regards the amount present during the day, but I attributed the excess of carbon-dioxide in a great measure to the rapid fermentation taking place on the surface of the soil, which is rich in manures, and the atmospheric conditions were ideal: an abundance of heat and moisture. Anyway, the figures obtained appeared to suggest an abundance of carbon-dioxide at all times. Overlying every square foot of the earth's surface there is 2.160 lbs. of atmospheric air, and in this quantity there are about 21 ounces carbon-dioxide, equal to 53 ounces carbon. This is a constant quantity, and is far in excess of the actual requirements of plants, or, in other words, the air contains one gallon of carbon-dioxide in 2,500, and to catch this minute quantity, the tree hangs out thousands of square feet of leaf surface in perpetual motion through an ever-moving air. *W. H. Davies, Styling Park Gardens, Brompton, Kent.*

WINTER-FLOWERING PLANTS AT "THE NODE."—It was my privilege recently to visit these gardens, to see the extensive alterations which are now being carried out by the new owner, C. A. Cain, Esq. "The Node" gardens promise to become equal to the more important gardens in this county of Hertfordshire. On the occasion of my visit I was especially struck with the wealth of flowering plants and their superior condition for mid-winter flowering. Very fine was a house of *Euphorbia* (*Poinsettia*) *pulcherrima* all growing in 6-inch pots, and though not nearly developed, many of the bracts already measure 17 inches in diameter. These were remarkable for their vigour, healthy foliage, and deep colouring of the bracts. A batch of 100 plants of *Euphorbia jacinthiflora* in 5-inch pots formed another striking object. Each plant was stopped once in the early stage of its growth, and three shoots were allowed to each, the result being plants of medium height and carrying long wreaths of brilliantly-coloured flowers, whilst the foliage clothes the stems from the pot upwards, showing the best possible culture. *Calanthe Veitchii* is also cultivated with unusual success. These are grown in 8-inch pots, each containing several bulbs. Other important subjects were winter-flowering *Begonias*, includ-

ing a particularly fine batch of *Gloire de Seaux*, a large number of well-grown *Cyclamen*, winter-flowering *Carnations*, and late-flowering *Chrysanthemums*. Though the gardener, Mr. J. Pateman, is probably best known as a successful fruit grower, he is equally skilful in providing a show of flowers at a season when they are most in demand for decorative purposes. *E. Beckett.*

MUTISIAS AT KEW.—The note on p. 413 headed "Mutisia" and signed W. is almost a transcript of part of an article which I wrote to accompany an excellent coloured plate, by Moon, of *M. Clematis*, which appeared in the *Garden*, 1899, vol. xxxvi., p. 78. I there stated that *M. ilicifolia* used to be in cultivation at Kew, but it had died, and, so far as I knew, was no longer in gardens. But that was over 22 years ago, since which such water has flowed under Kew's bridge and many things have occurred in the gardens. Thus in 1890 we had seeds of *M. ilicifolia* from Chili, and by 1894 we had a plant of it which half filled a greenhouse and it flowered profusely in August of that year. Then it died, but we have had others since, and W. may see a big example of it not far from the plant of *M. Clematis* about which he wrote. When I read the note on p. 413 I scratched my head, for it looked like my distinguished style; moreover, it was signed W. Worse still, Sir Frederick Moore and Dr. Bayley Balfour wanted to know why Kew could not grow this *Mutisia*, why I did not ask them of it, &c. Whilst I cannot claim to be the only W., I do claim the sole right to plagiarise my own writings, which for my sins, be it said, are scattered over a considerable number of years and in a variety of publications. Most of us are, consciously or unconsciously, indebted to others for ideas and information, but the wary among us are careful not to excite suspicion by appearing in coats and hats that are too large for us. *W. W.*

JUDGING AT THE FRUIT SHOW.—*Twickenham* seems to infer that because something occurred in connection with the judging of a class apparently that of "any other cooking variety" of Apple, and what that something is he does not specify, that I am personally responsible. Although I do not understand to what he is referring, it must have been very serious to have aroused such strong feeling on his part, yet it does not seem to have been noted by anyone else. If he saw something seriously wrong, he should have drawn the attention of the Show Superintendent to it at once. By not doing so, he seems to have put himself out of court. *A Judge.*

THE QUINCE.—At the recent autumn fruit show of the Royal Horticultural Society it was noticeable that none of the nurserymen included the Quince in their collections of hardy fruit. This does not necessarily imply that nurserymen do not attach any importance to this fruit; such an inference would be incorrect, for last year I purchased from one of our leading growers a dozen trees which bore the stamp of careful and attentive culture. Whatever the cause may be, the omission is regrettable, for the exhibition of a few dishes of well-grown Quinces would give a needed impetus to the cultivation of this handsome and aromatic fruit. A North London fruiterer remarked to me in the course of conversation that the English Quinces are nearly always miserable, undersized specimens, and he enquired if there were any difficulties attendant on the cultivation of the Quince. During the past few years there has been an increasing demand for Quinces, and many buyers would prefer home-grown fruits if they were obtainable. At present very few market growers are able to supply the need, and the demand has to be met with French Quinces, which are usually of good size, arrive tastefully packed in boxes of one or two dozen, and sell at remunerative prices. The Portuguese Quince, which is the best of the three kinds usually grown, requires a warm soil, and is not to be recommended for general culture, but where suitable conditions can be found this variety should be grown. The fruit is not so astringent as the other sorts, and when cooked its colour changes to red. Of the two remaining varieties that known as the Apple-shaped Quince is the better. The large, roundish fruits are, as the name suggests, shaped like Apples, and they are of a fine golden colour when ripe. The Pear-shaped Quince is most often grown, and from an ornamental point of view this variety is superior

to the foregoing, but the flesh is rather dry and woolly. When grown in shrubberies the usual form of tree is that of a low bush, but for orchard purposes the low standard is to be preferred. Except for the Portugal variety a somewhat moist position is the best, but none of the varieties will thrive in heavy soils. Too often the Quince is planted and then left to its own devices, when it makes a dense thicket of twiggy shoots bearing a few undersized fruits. When the branches are kept thinned and summer pruning is practised plenty of good fruits is assured. Though few people can eat the raw fruits, the Quince makes a delicious preserve; in fact, marmalade (marmelo in Portuguese) was originally made of Quinces, and a few slices of Quince improve an Apple tart. When ripe the Quince does not keep long; if placed in a cool cellar the fruits keep for eight or ten weeks, but care must be taken not to place them near other fruits, or the latter become impregnated with the Quince aroma. *A. C. Bartlett.*

HOGG'S "FRUIT MANUAL."—*A. D.*, p. 400, seems to be under a misapprehension on this subject. The last edition was published some 30 years ago at the price of 15s. In consequence of its being now out of print and holders of copies sticking to them, the price of a good, clean, second-hand copy is now £1 10s. Is this not a proof that if a new up-to-date edition were published at a reasonable price it would in due time meet with a good demand? I fear *A. D.*'s suggestion of 5s. is out of the question. *Yorkshire Horticulturist.*

LILIUM LONGIFLORUM.

LILIUM LONGIFLORUM is in evidence in Covent Garden Market all the year round, and especially at Easter and Christmas, when there is a larger demand than usual for white flowers. Our illustration (fig. 186) shows the *Floweret Lily* as grown in boxes in the Dale Nurseries, Canada, where a large trade is done, not only with Lilies, but also with *Carnations*, *Roses*, and other flowers. An account of these Nurseries appeared in the issue for March 25, 1911.

SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 19.—The Committee of this Society met at the Vincent Square Hall on Tuesday last, but no attempt was made to hold a show. The exhibits consisted exclusively of novelties submitted for awards.

Floral Committee.

Present: Messrs. W. Marshall and Henry B. May (Chairmen); and Messrs. W. P. Thomson, G. Reuthe, George Gordon, J. F. McLeod, E. H. Jenkins, W. J. James, Herbert J. Cutbush, Arthur Turner, John Dickson, Jno. Green, E. A. Bowles, C. Dixon, Jas. Hudson, J. T. Bennett-Poë, George Paul, and R. Hooper Pearson.

There were several new *Chrysanthemums* and a few other subjects shown before the Floral Committee, but the only plant that gained an award was a new species of *Buddleia* (*B. officinalis*).

AWARD OF MERIT.

Buddleia officinalis.—This is a new species from the Yangtze Valley, China, where it was discovered by Mr. E. H. Wilson. It has small flowers of mauve colour, with a brilliant, orange-coloured eye, and is just too tender for cultivation in the open garden in this country. As shown by Messrs. JAS. VEITCH & SONS, LTD., it promised to make a good, cool-greenhouse plant for flowering in December. An illustration of this species formed a Supplement to our issue for April 1, 1911. Messrs. VEITCH having shown plants on January 3 last.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. J. O'Brien (Hon. Sec.), J. Gurney Fowler, C. J. Lucas, W. Bolton, A. Dye, H. G. Alexander, J. E. Shill, W. H. Hatcher, J. Charlesworth, T. Armstrong, A. McBean, F. J. Hanbury, Gurney Wilson, and C. H. Curtis.

No large groups were accepted for this meeting, but a more than usually large number of

good varieties were shown. Messrs. CHARLES WORTH & Co., Haywards Heath, showed the rare Onychium antiochiense, which, as in the case of the original of many years ago, was imported with *Miltonia Warszewiczii*. The name implies a fountain of flowers, and the stout, branched scapes some 4 feet long bearing large yellow-lipped brown-petalled flowers give some excuse for the term. Messrs. CHARLESWORTH also showed the brilliant red *Odontioda Cooksonii* venustum, the yellow and rose-coloured *Lælio-Cattleya Myrrha* var. *flavescens*, and *Cypripedium Actæus* Durbar. (See Awards.)

Mr. E. V. Low showed a selection of good *Cypripediums*, including *C. The Nizam* (Helen II. × *insigne* Harefield Hall) with wax-like cream-yellow flowers spotted with purple; *C. The Gaekwar* (Ceres Fascinator × *Leeanum*), in which the *C. hirsutissimum*, parent of *C. Ceres*, is very pronounced; *C. The Maharajah*, *C. Napoleon*, and *C. Samuel Gratrix*, all fine flowers in which *C. insigne* Harefield Hall appears; and *C. Beryl* West Point variety.

Sir JEREMIAH COLMAN, Bart. (gr. Mr. Collier), sent *Odontioda Diana*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Lælio-Cattleya Nello (L. C. *Dominiana tangleyensis* × *C. labiata*), from Messrs. JAS. VEITCH & SONS, Chelsea. A finely-formed and very brightly-coloured hybrid in which the rich colour of L.-C. *Dominiana* has been intensified, and the flower given the good shape of the best form of *C. labiata*. Sepals and petals bright rose colour with silvery veining and a white spot at the base of each segment. The lip is glowing ruby-red, with thin yellow lines from the base.

Cypripedium Royal Sovereign (*Heera robustum* × *Urania* var. "*Martin Cohuzac*"), from Messrs. SANDER & SONS, St. Albans. A complex hybrid of fine size and great beauty, in whose production *C. Boxallii*, *C. Spicerianum*, *C. insigne*, *C. Argus*, *C. Lawrenceanum*, and *C. Charlesworthii* have participated, and may be traced in some degree. The large well-formed dorsal sepal is evenly decorated with dotted and feathered lines of claret-purple, the markings being the darker and heavier at the base, the white ground showing through clearly towards the mar-

verse of the flowers are tinged with purple which shades to the surface in places.

Cypripedium Actæus Durbar (*insigne* Harefield Hall × *Leeanum giganteum*), from Messrs. CHARLESWORTH & Co., Haywards Heath. A very broad and finely-formed flower of good substance. The upper part of the large dorsal sepal is white, the lower yellowish-green with large sepia-brown blotches. Petals and lip yellow shaded with sepia-brown. The extraordinary breadth of the short labellum is remarkable.

Cypripedium insigne "Gatton Park" variety, from Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier). A stately flower the result of crossing *C. insigne* Harefield Hall with a fine *C. insigne montanum*. The flowers were as large as those of *C. insigne* Harefield Hall, but with a more flatly-arranged dorsal sepal and with darker markings, the spotting on the white upper half of the dorsal sepal being of a rose colour.

Fruit and Vegetable Committees.

Present: Owen Thomas, Esq. (in the Chair); and Messrs. E. Beckett, A. Dean, J. Willard, J. Davis, G. Reynolds, and H. Markham.

The only exhibits before the Committee were two seedling Apples. One named George V. came from W. L. HUBBLE, Esq., Faversham, Kent. Fruits not unlike large King of the Pippins; very handsome and richly-coloured in appearance.

The other, unnamed, came from Mr. A. HUSSEY, Cambridge Road, Crowthorne, Berks.; of similar shape, but more delicately tinted and striped. It was advised that the variety be seen in a growing state next year.

LINNEAN SOCIETY.

DECEMBER 7.—Mr. H. N. Dixon gave an abstract of his paper entitled "Some Mosses of New Zealand." He stated that several collectors had contributed to this account, and specially referred to the Mosses sent by Mr. W. Gray from Mauriceville, Wairapa, North Island, which were of the highest interest, and the difficulty in which the author was involved by the extreme modesty of the collector, who would not consent to a new genus bearing his name; ultimately it was named *Tetraphidopsis*, Broth. and Dixon.

Dr. George Henderson then showed a series of more than 70 slides, taken during an official mission through Kashmir, Little Tibet, and Turkestan in 1870. The original photographs had been lost sight of, but having recently been discovered in the keeping of a friend, lantern-slides had been made from them, and were now shown, with explanations by the author. He traced the progress of the expedition from Lahore to Yarkand, where the series ended.

Dr. Stapf and the president commented on the interest of the exhibition, and the botanical results obtained 40 years ago.

Dr. Henderson also showed three variations in the foliage of *Alnus glutinosa* from the banks of the River Darent, in full view of his house, and explained that these differences corresponded with varying dates of leafing, leaf-fall, and fruiting.

The president spoke on the changes induced by trees and shrubs being cut back, the luxuriance of the new growth making it almost unrecognisable, as in a case observed at Oakley, when it was found that *Rhamnus cathartica* had assumed a new form owing to severe coppicing.

Dr. A. B. Rendle showed a fine specimen of a viviparous *Poa* (trivialis, Linn., found by Mr. Miller Christy at Stisted, near Baintree, in Essex. The normal inflorescence was almost entirely replaced by a mass of vegetative cut-growth replacing the flowers.

ROTHERSAY HORTICULTURAL.

DECEMBER 15.—The Norman Stewart Institute, at Rotherhay, was the scene of an interesting ceremony on this date, when a special committee meeting was held for the purpose of presenting to the Secretary of the Horticultural Society, Mr. Urquhart F. Innes, some gifts to mark the occasion of his marriage. Mr. Innes has long been connected with the work of the society.



FIG. 186. *LILIAM LONGIFLORUM* AS FORCED BY MARKET GROWERS.
(See p. 181.)

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed the beautiful *Brasso-Lælio-Cattleya Veitchii*, to which a First-class Certificate was given in 1907. The large rose-coloured flowers have a very fine broad rose-purple lip with bright yellow disc; also *Lælio-Cattleya Rubens* Westfield variety of good size and shape.

The Honble. Lady NEELD, Grittleton (gr. Mr. Pitts), sent *Cattleya Venus* var. *Lady Neeld*.

From TRACY'S NURSERY, Twickenham, came *Lælio-Cattleya Floryi* (L.-C. *Violetta* × *C. Trianae*), a very pretty flower with silver-white sepals and petals with a pearly-pink flush and bright violet-crimson front to the lip. Also *Cypripedium villosum* Tracy's variety, a large flower of peculiar colour.

Messrs. SANDER & SONS showed *Cypripedium Troilus* Invincible, a massive flower of the *C. Alison giganteum* class.

Messrs. JAS. VEITCH & SONS, Chelsea, sent a fine variety of *Cypripedium Clonia*, and *C. Snowden* like a light form of *C. insigne* Sandere.

Messrs. STUART LOW & Co., Bush Hill Park, sent *Vanda Amesiana* albens, an almost entirely white-flowered form.

gin. The broad petals and lip have a glossy surface and are tinged with mahogany-red, some of the spotting of *C. Argus* appearing on the petals. It is a very distinct hybrid.

AWARDS OF MERIT.

Cypripedium Lord Wolmer "Westonbirt" variety (*Leeanum* × *Evagades leopoldinum*), from Lt.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A well-rounded flower in which the lower sepals have wings coloured like the upper sepal. The dorsal sepal is white spotted with claret-purple, and the petals and lip yellow, tinged and spotted with dark purple. The middle part of the lower sepals is apple green, and the abnormally-developed sides white with purple spots.

Odontoglossum crispum *Alyceon*, from J. GURNEY FOWLER, Esq., Gleeblands, South Woodford (gr. Mr. J. Davis). Although flowering out of season, this presented itself as a very fine, distinct, and well-grown plant, the heavy inflorescence having 14 large white flowers, the sepals blotched with purple and the petals bearing clusters of light purple small spots. The re-

NORTH OF ENGLAND HORTICULTURAL.

CONFERENCE AT LEEDS.

DECEMBER 13.—At a well-attended meeting of the above society, Major J. W. Dent in the Chair, papers were read by Dr. Burt, York; Mr. W. F. Emptage, London, expert to the *Fruit Grower*; and Mr. J. Smith, F.L.S., Durham.

Dr. Burt submitted the following resolution: "That this Conference views with concern the persistent increase in this country of the pests American blight or woolly aphis (*Schizoneura lanigera*) and Currant bud mite, or Black Currant gall mite (*Eriophyes* [*Phytoptus*] *ribis*), both causing dangerous and contagious diseases of plants, and urgently requests the Board of Agriculture and Fisheries to place them on the schedule under the Destructive Insects and Pests Acts 1877 and 1907."

Dr. Burt said: "We have our Destructive Insects Act of 1877 (the first recorded instance of legislation against specific plant diseases). We have the supplementary Act of 1907. We have orders and regulations from time to time of the Board of Agriculture and Fisheries, and yet we have with us still to a varying extent such old enemies as the large Larch sawfly (Cumberland, 1904) (not given as a scheduled pest in Board of Agriculture leaflet 186); black scab, or Potato canker; Tomato leaf-spot; American Gooseberry mildew, and others."

It may not be out of place to consider what are the causes which tend to prevent the successful combating of plant diseases.

These may be tabulated as follow:—

I.—Inefficient legislation.

II.—Want of accurate knowledge of plant pathology.

III.—Indifference.

In the first category may be mentioned:

(a) The absence of statutory ports of entry for imported plants, &c., with compulsory inspection and fumigating stations connected therewith.

(b) The delegation of duties under the Acts above mentioned to local authorities under the Diseases of Animals Act, 1894.

(c) An uncertain scheme of compensation—the question of compensation being at the discretion of the local authority.

(d) Absence of compulsory and periodic inspection of growing stocks by export officials.

What is the legislation in respect of destructive insects and pests in Canada?

C. Gordon Hewitt, D.Sc., Dominion entomologist, Ottawa, wrote as follows in the *Gardeners' Chronicle*, July 15, 1911:—

"The Department of Agriculture of Canada is empowered by the Destructive Insects and Pests Act of 1910 to take such action as may be deemed necessary to prevent the introduction or spreading of injurious insects, pests, and plant diseases. All plants, with the exception of certain classes, such as greenhouse-grown plants, herbaceous perennials, and bulbs, may be imported at certain seasons of the year only and through certain ports as specified in the regulations. The Department of Agriculture has power to inspect plants liable to be infested with certain insects and plant diseases, to destroy the same if necessary, or to prohibit their importation into Canada."

At some of the ports of entry (see Section 3 of the Regulations) fumigation stations are established where plants from countries and states infested or liable to be infested with the San Jose scale are fumigated with hydrocyanic acid gas by special officers in charge.

"Plants from Europe, Japan, and the States of Vermont, Maine, Massachusetts, New Hampshire, Connecticut and Rhode Island, and the United States of America, are inspected by officers of the Department for the brown-tail moth and gipsy moth. In some cases this inspection is made at the port of entry; in other cases at the destination of the stock. In the latter case the plants may not be unpacked except in the presence of an inspector."

"It is necessary for all persons and transportation companies importing or bringing plants into Canada to notify the Dominion entomologist, Ottawa, of the fact, and, through the co-operation of the Department of Customs, the Customs officers at the ports of entry also send advices of the arrival of shipments of plants at the various ports through which plants may enter."

"In addition to the inspection and fumigation of imported plants, field officers are employed in inspecting orchards and in carrying out eradication measures against the brown-tail moth in those regions in Nova Scotia and New Brunswick infested with the insect. This eradication work is carried out in co-operation with the respective provincial governments. The fumigation and inspection of imported plants and infested regions and all measures for eradication work are carried out under the direction of the Dominion entomologist."

"The Minister of Agriculture has power to prohibit the importation of plants from any given region should it be deemed necessary, owing to the presence of serious insect pests or diseases in such a region. This has been done in the case of Potatoes from Newfoundland and the neighbouring islands, to prevent the introduction of Potato canker (*Chrysophlyctis endobiotica*)."

The delegation of duties under the Destructive Insects and Pests Acts, 1877 and 1907, to local authorities acting under the Diseases of Animals Act, 1894, in addition to other duties devolving upon such local authorities, is unsatisfactory from our point of view (making use of the wrong tools), and might with advantage be altered to the extent of appointing a staff of horticultural inspectors with powers similar to those obtaining in Canada.

It is not surprising to learn from the 1909-10 Report of the Intelligence Division of the Board of Agriculture that the severest attacks of American Gooseberry-mildew occurred in the county where the local authorities did not appoint a properly-qualified inspector to deal with the disease.

The following critical account of European nursery conditions appears in *Farmers' Bulletin*, No. 453, issued by the U.S. Department of Agriculture, and dealing with "The danger of spread of the gipsy and brown-tail moth through imported nursery stock":—

"During the summer of 1909, and also again in 1910, Dr. Howard, who was in Europe principally to supervise the introduction of parasites for the gipsy and brown-tail moths into Massachusetts, made a careful inspection of the nursery regions of Holland, Belgium, and northern France, and also England."

In England, Dr. Howard found that, as in France, there was no governmental nursery inspection (see Mr. Pearson's note in *Gardeners' Chronicle*, August 5, 1911, p. 94). The nursery conditions there are somewhat better than in France, but the brown-tail moth and other injurious insects, which might easily be imported on nursery stock, occur in England.

Turning for a moment to the legislation on the question, we find in Article 3 of the Destructive Insects Act, 1877, that where the Privy Council may by order direct or authorise the removal or destruction of any crop, they may direct or authorise the payment by the local authority of compensation and the local authority shall pay the same, subject to certain provisions as to amount, &c.

This article is endorsed in the Destructive Insects and Pests Act, 1907, with the proviso that the Board of Agriculture and Fisheries shall not make an order for compensation unless the local authority consent to make the payment."

These enactments in reference to compensation for compulsory destruction of plant-stocks find due place in the Orders issued by the Board of Agriculture, dated May 3, 1910, and September 11, 1911, respectively.

After instituting a number of inquiries in various parts of the country, I have not been able to discover from the replies so far sent in either that an order has yet been made for compulsory destruction—(with one exception where destruction by order of the local authority resulted in "quite unimportant" loss), or that compensation has yet been granted.

On the other hand, I have met with an instance (previous to the issue of the American Gooseberry-mildew order of September, 1911), where, after inspection by an officer of the Board of Agriculture, followed by the voluntary destruction of stock to the value of over £150, no compensation could be claimed, the Board declining responsibility.

I venture the suggestion that the eradication of some of the most dangerous and destructive insect and fungus pests, some of which have long resisted the individual efforts made against them, would be hastened if compulsory destruction, ac-

companied by a fair and certain compensation were more generally adopted.

In making this suggestion I do not wish for one moment to under-estimate the value of the efforts which many nursery firms and private growers are making to combat disease. I cannot, however, endorse the opinion which obtains, I believe, in the trade, that legislation against disease is not needed. Experience tends to show that individual efforts, stimulated as they doubtless are by the thought of maintaining a great and well-deserved reputation, are frequently rendered of no avail, and that the only certain cure lies in the direction of effective legislation.

PAPER BY MR. EMTAGE.

Mr. Emptage stated the commercial aspect of the case. He pointed out that in our Colonies and elsewhere the fumigation of general nursery stock was compulsory, also the destruction of affected fruit.

In the case of the American Gooseberry-mildew the Board of Agriculture were to blame for letting the disease obtain a firm hold before taking efficient steps to prevent its being spread throughout the country. He advocated intelligent cutting out of diseased wood and compulsory spraying with sulphide of potassium or Bordeaux mixture in summer and sulphate of copper (11 lb. to 25 gallons of water) in winter. The official plan of worrying nurserymen and omitting altogether to inspect private places or imported bushes could not be too strongly condemned.

As regards the black scab of the Potato, he advocated the burning of all diseased roots and the offering by local authorities the sum of 1s. per affected tuber.

Silver leaf in fruit trees, said Mr. Emptage, was too often spread by derelict trees on land awaiting the builder. No system of compulsion could be effective if such plague spots were overlooked.

Generally speaking wholesale compulsory destruction could never be carried out. Spraying should, however, be made compulsory and would prevent or limit the spread of disease.

The cyaniding of nursery stock was cheap and effective. Foreign imported stocks for fruit trees especially could be cleared of American blight by cyaniding.

Mr. J. Smith advocated the inspection of markets. He said that packing materials, green-grocers' refuse, cork dust, and refuse from docks should be burnt and not allowed to be placed on to manure heaps and spread disease up and down the country.

Mr. W. Cuthbertson stated that the export of Potatoes to Australia was at present an impossibility owing to the refusal of the Board of Agriculture to grant clean bills of health to exporters. Any compensation should come from Imperial sources. He recommended the self-denying ordinance of the Government of South Africa in placing the work of the agricultural authorities outside party politics for three years. In England a similar resolution would enable much practical progress to be made. He advocated the establishment of a research station in the north of England, conditions of climate, &c., demanded such a station.

Professor Seton, of Leeds University, pointed out the need for inspection at our entry ports of both stocks for fruit trees and also fruits.

After further discussion Major Dent laid stress on the necessity for only destroying diseased stock, and that compensation for diseased stock alone should be given and paid for out of the Imperial Exchequer. In Agriculture the principle adopted was to compensate a man for stock apparently healthy but infested by accident or misfortune with diseased stock.

The Chairman then put the following resolution, which was carried unanimously:—

That this conference urges upon the Board of Agriculture and Fisheries the urgent necessity

- (1) of a staff of trained horticulturists as inspectors to carry out the provisions of the injurious insects and pests orders;
- (2) of more stringent precautions against the entry of diseased plants, fruits and vegetables and packing materials used for same, at our ports;
- (3) of the establishment of stations for horticultural research in the north of England and other parts of the country.

KENT COMMERCIAL FRUIT SHOW.

DECEMBER 11, 12.—An association of Kentish fruit growers promoted a competitive exhibition of hardy fruits at the annual cattle show at Ashford, held on these dates. In the words of the secretary, Mr. R. Wellington, "the aims of the show are to boom and advertise British-grown fruit, in order to counteract the efforts of foreign and Colonial growers to capture our markets, and, at the same time, to introduce a standard package, with better methods of packing and grading."

The committee was composed of representative growers from all parts of Kent, and the judges were Messrs. Lobjoit and Martin, who adjudicated simply from the growers' standpoint, while Mr. Poupart judged the exhibits entirely from a wholesale buyer's point of view. The majority of the exhibits were received by rail, and hence the effect of the handling by the railway porter could also be studied. Judging was being given as follows:—

Uniformity of Apples in box	... 30
Condition (bruising, &c.)	... 30
Packing (attractiveness, &c.)	... 30
Colour	... 20
Size (commercial standpoint only)	... 20

100

In the class for five boxes of Bramley's Seedling Apples, the 1st prize was awarded to C. S. SMITH, Esq., Boughton Monchelsea; 2nd, W. L. HUBBLE, Esq., Faversham; 3rd, W. W. BERRY, Esq., Faversham. The season was undoubtedly unsuited for this variety, this class being the worst in the show. The 1st prize fruits were of a medium size, good colour, and well packed; those awarded the 2nd prize were green, well graded and packed, but small. In the opinion of many these were the better fruits.

The fruits in the class for five boxes of Apple Newton Wonder were the finest in the show. The packing, however, was below that of any other class. The 1st prize was awarded to S. SMITH, Esq., Barming; 2nd, W. W. HUBBLE, Esq., Hutton.

The next class was for five boxes of Lane's Prince Albert Apples, and although there were some fine fruits, the majority were very early in the best condition, owing to the very early season. The 1st prize was awarded to W. L. HUBBLE, Esq., Faversham; 2nd, SOUTH-EASTERN AGRICULTURAL COLLEGE, Wye.

For five boxes of Blenheim Pippin, Mr. W. W. BERRY, Faversham, was successful; 2nd, Mr. W. W. HUBBLE, Hutton; 3rd, Mr. S. SMITH, Barming.

A class for any dessert Apple (with the exception of Blenheim Pippin), three boxes, attracted a large number of entries, chiefly of Cox's Orange Pippin, which, another year, should be placed in a class by itself. Some surprise was expressed at the 1st prize going to a superb exhibit of King of the Pippins. Although only of a good medium size, the condition, colour, grading, and packing of these boxes was perfect. This exhibit showed to what excellence this variety can be grown on some soils. The 2nd and 3rd prizes were awarded to Cox's Orange Pippin, which, although very beautiful, were not of such fine quality. The 1st prize was won by Mr. W. L. HUBBLE; 2nd, Messrs. GASKIN & WHITING, Faversham.

A class was provided for the best-packed box in the show, branded and labelled ready for market. The packing in this class was, in the majority of cases, excellent. The prizes were given for boxes packed with no wood, wool or paper between each Apple or layer. That such an amount of material is not required was easily demonstrated by the condition of the Apples in the prize boxes, and so long as the Apples are well graded and packed tightly, they will travel perfectly well. The labels, however, were not attractive; these should be as striking as possible, without offending the artistic tastes of the public. The 1st prize was won by Mr. S. SMITH, Barming; 2nd, SOUTH-EASTERN AGRICULTURAL COLLEGE, Wye.

The next three classes were for growers having fewer than 20 acres, and it seems a matter of regret that these should not have been more supported. (1) One box of Bramley's Seedling Apple. Whereas the boxes in Class I. seemed to point that this Apple does not show to the best

advantage when packed in a box, the exhibits in this class, however, refuted this statement, and the box which took 1st prize showed that the "pack" is pre-eminently suited to Bramley's Seedling as it termed the "off set." 1st prize, SOUTH-EASTERN AGRICULTURAL COLLEGE, Wye; 2nd, Mr. G. STUDD, Sittingbourne. (2) One box of Lane's Prince Albert. The smallest class in the show. 1st, Mr. C. BATES, Ashford; 2nd, Major NICHOLSON, Sutton Valence. (3) One box of any dessert Apple. All the prize boxes contained Cox's Orange Pippin. 1st, Mr. F. H. WHEELER, Marden; 2nd, Mr. H. E. HUTCHINSON, Staplehurst.

A class open to any grower in Great Britain for one box of a cooking Apple in season attracted many exhibits. The 1st prize was won by Messrs. GASKIN & WHITING, Faversham, with Annie Elizabeth, which also obtained the champion cup as being the best box of Apples in the show. The exhibit was a superb one, the packing being so good that the Apples arrived with no blemish whatever. The fruits were of a good size, very even, clear, and of excellent colour. A box of Dumelow's Seedling (Wellington) exhibited by the same growers, was thought by some to be equal. 2nd, Mr. A. MISKIN, Chart Sutton, with an even and well-packed box of Newton Wonder.

The class for one box of a dessert Apple in season composed the finest collection of dessert Apples in the show, and the judges had difficulty in awarding the prizes. 1st, Messrs. GASKIN & WHITING for Cox's Orange Pippin; 2nd, Mr. J. REDMOND, Loughcall, Co. Armagh, Ireland, for Gascoyne's Scarlet Seedling.

A cup offered for the best exhibit of 25 maiden fruit trees on the Crab stock was won by Mr. J. W. TODMAN, Boro' Green.

There was a large collection of trade exhibits of firms supplying all the requisite sundries required by the fruit grower, from a 1 lb. chip to a power sprayer.

On Monday a fruit conference was held, at which papers on "Lime Sulphur and Apple Scab," &c., by Mr. E. S. Salmon, and "Packing and Grading of English Apples," by Mr. C. S. Smith, were read. A packing demonstration was also given.

NATIONAL ROSE.

DECEMBER 14.—The annual general meeting of this Society was held at the Westminster Palace Hotel on this date. The President, Rev. J. Pemberton, occupied the Chair, and amongst others present were Messrs. C. E. Shea, E. J. Holland, G. W. Cook, H. R. Darlington, Rev. Page Roberts, A. Tate, Frank Cant, G. Gordon, and John Green.

After the minutes were read, a letter was read from the hon. secretary, Mr. Edward Mawley, regretting his inability to be present owing to a severe illness, this being the first time in 35 years that he had been absent from the annual meeting. It was resolved to send a telegram of condolence to Mr. Mawley regretting his absence, and expressing a wish for his early and complete restoration to health.

The report of the council was presented; and the following being extracts:—

In submitting their report for the past year, the Council congratulate the members upon the continued satisfaction of the Society from whatever point of view that position may be regarded. For the first time in the history of the Society the number of members exceeds 500. The membership has doubled in the last four years, and is still increasing rapidly.

The Metropolitan Exhibition was again held by the kind permission of the President and Council of the Royal Botanic Society in their Gardens in Regent's Park. It took place this year on July 7, and proved one of the largest and most successful yet held. The most noteworthy feature in regard to this exhibition was that it occupied a canvas structure, with a level-boarded floor.

The provincial show took place at Ulverston on July 19. Unfortunately, owing to the excessively hot and dry character of the weather from the beginning of July, this exhibition proved much less successful than the first.

The autumn exhibition, the eighth of the series, again took place in the Royal Horticultural Hall, Vincent Square, Westminster.

On the occasion of the presentation of his Majesty King George V. the Society had the honour of presenting to her Majesty the Queen, and also to her Majesty Queen Alexandra, which were most graciously acknowledged by the Society, held on April 25, a number of alterations and amendments were made in the rules and bye-laws of the Society, with a view to make more satisfactory a method of electing the officers and amending the annual general meeting.

On the same day, when the meeting was held at the Westminster Palace Hotel, the President delivered an address on "Roses for the Garden," which was followed by a discussion. The room set apart for the conference was

packed with members, some few being unable to obtain seats.

During the course of the past year the following publications have been issued to the members: In March, the *Rose Annual* for 1911; in October, the 1912 edition of the *Official Catalogue*; and in November, the last of the 1912 edition of the *Handbook on Pruning Roses*.

At the last annual general meeting the Dean He Mead, who has presented to the Society, the Dean He Mead Medal was presented to Mr. Edward Mawley, for his invaluable services as hon. secretary of the National Rose Society, extending over a period of 33 years, and for his efforts on behalf of the Rose. The Council feel that this medal can never be more worthily bestowed.

The number of members in affiliation with the National Rose Society is now 568.

The Council announce with regret the death in April last of one of the Society's Vice-Presidents, Mr. R. N. G. Baker, of Heavitree, Exeter. Although known to but a few of the present generation of exhibitors, he was in the early days of the Society its most famous and successful amateur exhibitor. In those days there was no Amateur Challenge Trophy, but in the same leading class he was the most successful competitor. He was the first winner of the Amateur Challenge Trophy in 1881, and in 1888 again succeeded in winning it.

The Rev. Alan Charles, another veteran and respected Rose grower, has passed away from among us during the year. He will, perhaps, be best remembered as the founder of the Brockham Horticultural Association, the oldest Rose Society in the Kingdom. He was for many years a member of the Committee of the National Rose Society, and was a frequent exhibitor at the National Rose Exhibitions.

The receipts from all sources during the past year, including a balance from the previous year, amounted to £3,100 15s. 6d. The expenditure to £3,027 15s. 8d. leaving a balance at the bankers of £498 15s. 10d. after £20 had been placed to the reserve fund. The new annual year.

During the last 12 months 856 new members have joined the Society. Allowing for the losses by death in the early part of the year, the total number of members is now 5125. Taking the year as a whole, between two and three members a day have, on an average, been added to the list of members. In the jubilee of the jubilee of the Southampton Royal Horticultural Society, it has been decided to hold a Rose Show in conjunction with that Society on June 25.

The Metropolitan Exhibition will take place in the Royal Botanic Gardens, Regent's Park, on Tuesday, July 9.

The Provincial Show will be held at Belfast, in connection with the Irish Rose and Flora Society, on Friday, July 10.

As at present arranged, the autumn exhibition will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on Thursday, September 12.

If suitable arrangements can be made, the foreign Rosarians present at the International Horticultural Exhibition in 1912 will be invited to dinner during their stay in this country, and a Rose conference will be held early in the afternoon of the same day.

The financial statement was explained in detail by the treasurer, Mr. G. W. Cook, who referred to the amount spent on publications which were sent to every member of the Society, also to the extra show at Southampton during 1912, and proposed dinner to foreign rosarians attending the Royal International Horticultural Exhibition, in 1912. The adoption of the report was moved by the president. This was seconded by Mr. J. Jefferies. Mr. H. R. Darlington drew attention to the large number of members subscribing half-a-guinea, and asked the members to consider whether additional benefits could not be given to one-guinea subscribers? He also referred to the new classes held at the last autumn show, which proved a distinct feature. The report was carried nem con.

Mr. George Paul moved that the usual honorary of £100 be given to the honorary secretary, and also a special one of £105, be granted this year.

The motion was carried unanimously. On the proposition of Mr. C. E. Shea, seconded by Mr. H. R. Darlington, Bye-law 7 was made to read as follows:—

By the word "Nurseryman" is understood a person who maintains a garden, or other horticultural establishment, for the purpose of gaining a livelihood, and who intends to retain him and his family in the same. "Amateur" is understood a person who maintains a garden with a view to his own use and enjoyment, and not for the purpose of gain. The livelihood of his occasionally disposing of surplus produce, or new varieties, for money, does not change him into a Nurseryman, unless the whole or a large part of the garden is returned to him an annual profit, but no person shall be allowed to compete as an Amateur who sells Rose plants (except when giving up his position of the place, and in the case of new seedlings or sports), Rose blooms or buds for budding. No lady may exhibit as a Lady Amateur who is either married or unmarried, or who is a resident member of the family of one engaged in such trade, or as a paid gardener. To exhibit in the ladies' article class a lady must either be a subscriber to the Society, or else a member of the family, and of the household, of a subscriber. Any objection raised as to the right of an exhibitor shall be referred to the Council for arbitration, and their decision shall be final and binding on all parties.

The election of the members of the Council was next declared, those whose names appeared on the ballot list being appointed, with the addition of Mr. C. M. Edwards.

CONVERSATION.

Following the annual meeting, a conversation was held in an adjoining room, at which more than 200 members and friends were present. Refreshments were provided, and a selection of vocal and instrumental music rendered. An address was delivered during the afternoon by the President, Mr. Pemberton said that the development of the Rose during the past 10 years had been very rapid. When he first began to

grow Roses, only one class, the H.P.s., was grown in any considerable quantity. One reason why the Rose was so popular, was owing to the fact that the flower was adapted to all purposes in the garden, and the exhibitions were another influence for good. Years ago, amateur growers staged their own blooms, and were often to be seen travelling the country with their boxes, but this was now given up largely to their gardeners. After being in cultivation for a number of years, many varieties deteriorate, but some few improve by cultivation, as, for example, Bessie Brown and Earl of Warwick, which were small when introduced, but afterwards developed into varieties suitable for exhibition. Marechal Niel was instanced as a variety which had deteriorated. Referring to the decorative classes at the Society's exhibitions, Mr. Pemberton said a matter worthy of consideration was that the Roses should be grown by the exhibitors as in the open classes. His advice to beginners was not to search too much after novelties, but wait until the new varieties had been proved. Soil, aspect, pruning and the general health of the plants have a considerable bearing on the success achieved at flower shows. Horticulture in general, and Rose-growing in particular, said the speaker, is an ennobling pursuit, and the most satisfactory of all hobbies.

A coloured photograph of the Coronation basket of Roses presented to Her Majesty Queen Mary was on view. The room was beautifully decorated with Roses by Mr. H. F. Felton.

BIRMINGHAM AND MIDLAND COUNTIES CHRYSANTHEMUM, FRUIT AND FLORICULTURAL.

DECEMBER 13.—The annual dinner of this society was held on the above date at the Exchange Restaurant, Birmingham. There was a good attendance, both of professionals and amateurs, from Warwickshire and the adjacent counties. An interesting speech was made by Mr. T. Humphreys, in which he sketched the present position of the society, which, though improving, is not quite so prosperous as it should be in so important a place as Birmingham. The subscribers to the society number 360, but a somewhat inadequate membership, when it is considered that each show costs between £700 and £800. It is not expected that the society's accounts will show a profit, but the income will probably balance expenses, and the committee are taking various steps towards the attainment of this desirable object.

LAW NOTE.

NURSERYMEN AND THE UNDEVELOPED LAND TAX.

For some time past there has been a certain amount of argument on the question of how far nurserymen are liable to pay the annual tax known as "Undeveloped Land Duty." When the Budget (which imposed this tax) was referred to the electors, certain nurserymen were freely assured by some of its supporters that nurseries would be wholly exempt. It has since been pointed out in these columns that such an assertion is absolutely untrue, and that the only portion of a nursery which is exempt from the tax (apart from any question of value) is that portion of the soil on which a greenhouse actually rests for support.

When once a false impression gains credence it is very difficult to correct it, and accordingly steps have just been taken to get the matter openly discussed in the House of Commons, in the hope that as soon as the hardships of nurserymen were explained something might be done to alleviate them. The debate on the subject took place on Tuesday, December 12, and will be found reported in the newspapers of the following day. A short summary of what transpired will probably be of interest to nurserymen.

THE DEBATE.

Mr. Newman (Enfield) moved an amendment to this year's Finance Bill to the effect that Undeveloped Land Duty should not be charged in respect of land used for nursery gardens, market gardens, or allotments. He complained strongly of the hardship imposed by this tax on horticulturists, and stated that the duty

would probably be charged on every acre in his constituency, although every acre was being put to excellent use. He made a powerful appeal for fairplay to be extended to growers.

Mr. Campion (Lewes, Sussex) strongly supported the appeal.

The Chancellor of the Exchequer (Mr. Lloyd George) said market gardens or nursery gardens were often the best means of utilising land, and in many cases the value of the land for agricultural purposes exceeded its building value. Where the value of the land for agricultural purposes was high the burden of the tax would be very small. In the majority of cases the people who were using the land did not own the freehold, and had, therefore, no tax to pay. He knew of many cases where the rent paid was £10 or £15 an acre, or even more, and in such cases the owner could well afford to pay a tax of a few shillings.

Mr. Austen Chamberlain (Worcestershire, E.), who is closely in touch with the Evesham growers, argued that the principal defence of the Chancellor of the Exchequer in his earlier speeches for this tax was that it would help to force land into the market for building purposes. The effect on the market garden or allotment industry in a particular place would be



THE LATE VICTOR LEMOINE.

just as injurious if it were made unprofitable to the landlord as if it were made unprofitable to the tenant.

Mr. W. Horne (Guildford, Surrey) supported the last speaker.

Mr. Courthope (Rye, Sussex) stated that the Undeveloped Land Duty was hampering the attempt to provide allotments within easy reach of the dwellings of the working classes at a rent which they could afford to pay.

Mr. Wedgwood (Newcastle-under-Lyme) contended that the tax would have the effect of encouraging the use of land for market gardens. Having to pay the tax, the owner would avail himself of the opportunity of getting £3 an acre for the land as a market garden rather than £1 an acre for it as agricultural or grazing land. The tax would tend to change grazing land to market gardens, and these, in their turn, to building land.

Mr. Butler (York) argued that a man would naturally endeavour to get the best rent he could for his land, and it was not necessary to encourage him to do this by taxing the land. He especially pleaded for more favourable treatment in respect of land used for allotments. The effect of the tax must inevitably be to increase the rent for allotments.

The House divided upon the subject, and the result was as follows:—

Against the concession to nurserymen, etc. 177
For the concession to nurserymen, etc. ... 103

Majority against ... 74

JUSTICE FOR NURSERYMEN.

It will be seen therefore that the statement of the position given in previous issues of the *Gardeners' Chronicle* was correct, and for the present, at all events, nurserymen must submit to the tax, though it is understood that their efforts will by no means be relaxed. The matter is of some urgency from their point of view, as the tax is to be calculated as from April 30, 1909, so that they have already nearly three years arrears on their backs. Also a fresh valuation has to be made in 1914, and every five years afterwards.

With all due respect to the Chancellor of the Exchequer, the writer is entirely unable, from the practical point of view, to endorse his argument that the tax will necessarily fall on the landlord and not on the tenant. As a business man, the landlord will naturally seize the earliest opportunity of increasing the rent by the amount of the tax, and, according to the laws of supply and demand, the landlord should be able to do this in almost every case where the demand for land exceeds the supply. Furthermore, the Chancellor did not explain why a nurseryman who owns and cultivates his land should pay the tax, although every other trade is wholly exempt. It is absolutely incomprehensible why nurseries, at all events, should be penalised in this manner, as it is obviously impossible to "hold up" land on the outskirts of towns by letting the whole of it for nurseries. Few towns can support more than a few acres of nursery ground in any given district.

It is understood that, as the above appeal to the Government has failed, nurserymen are considering the question of laying full details of their grievances before the Opposition, in the hope of securing some promise of redress in the future. Those who sympathise with the nurserymen are urged to communicate their views to their M.P., and also to the agent of both political parties in any constituency where they may carry on business or reside. H. M. V.

Obituary.

VICTOR LEMOINE.—It is with deep regret that we have to announce the death, on the 12th inst., of Monsieur Victor Lemoine, the head of the well-known and widely-honoured firm of Lemoine et Fils, of Nancy, France. The veteran horticulturist—who had almost attained the great age of four-score years and ten—has been for many years past a prominent figure in the horticultural world. A "Membre d'Honneur" of the National Horticultural Society of his own town, his fame may be said to have become almost worldwide. He has been the means of introducing countless new plants, many of his own raising. His name will always be associated with the *Gladiolus*, for he is responsible for the beautiful hybrids known as G. Lemoinei and G. nanceianus, and those who have visited the nurseries at Nancy will never forget the effect produced by the sight of so many rare and beautiful plants, the care of which was the delight of their veteran owner. In Monsieur Lemoine, we have lost a horticultural genius, and his native town will mourn its most notable citizen. Besides many distinctions in connection with his profession, he was also an officer of the Legion of Honour; that title so prized by all Frenchmen, so well deserved by him, and only recently was selected by the Massachusetts Horticultural Society for the award of the "White" Medal (see p. 457). To Monsieur Emile Lemoine, his eldest son, himself an eminent horticulturist, and to his daughters, we express sympathy, and the assurance that in England, and in all lands where horticulture takes a high place among national pursuits, the name of Lemoine is known and honoured, and will be remembered.

MRS. WALKER. We regret to announce the death of Mrs. Walker, widow of the late W. Stephen Walker, of the firm of John Walker, nurseryman, Thame, in her 68th year.

MRS. W. BARNES.—The death of Mrs. Barnes, wife of Mr. Walter Barnes, of Bearwood, Wokingham, took place after a long illness on Tuesday the 12th inst.

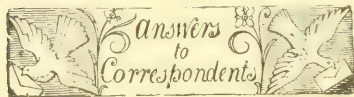
MRS. WILLIAM HOWE.—The many friends of Mr. William Howe, of Park Hill Gardens, Streatham, will learn with regret of the death of his wife, which occurred on the 14th inst., following an operation.

EDOUARD BORNET.—The French Press announces the death of the distinguished cryptogamic botanist, M. Edouard Bornet, who was born in 1828. M. Bornet possessed an unrivalled knowledge of the lower plants, and received in 1891 the Gold Medal of the Linnean Society in recognition of his eminence in the botanical world.

GEORGE R. M. MURRAY, F.R.S.—We regret to record the death of Mr. George Murray, formerly keeper of the Department of Botany in the British Museum. Mr. Murray, who was educated at the University of Edinburgh and at Strasburg, held various teaching posts in London before his appointment, in 1895, as head of the Botanical Department of the British Museum. Mr. Murray, who was a Fellow of the Royal Society, was specially interested in marine botany and was the author of the text book entitled *An Introduction to the Study of the Seaweeds*. Owing to ill-health he retired from the British Museum in 1905. Mr. Murray died at Stonehaven, Kincardineshire, on Saturday, December 16.

ENQUIRY.

A PLAGUE OF STARLINGS.—A friend is very much tormented with a flock of starlings which has taken up its quarters on the trees in front of his house. There appear to be thousands of them. How can he scare them away? The firing of guns appears to be ineffective. J. M.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

APPLES DISEASED: *Enquirer*. The Apples sent us are attacked by the disease known as bitter-pit, which is due to some condition of growth not understood. No cure is known.

BLACK ARUM: *C. Luxford*. *Arum palestinum* (sanctum) is known as the black Arum, the spathe being of a dark vinous purple colour. It may be purchased from dealers in hardy herbaceous and bulbous plants.

BRENTED VIOLETS: *Williams*. The Violet affords a good instance of forking or dichotomy of the peduncle. There is no evidence whatever of fusion of two stalks; the stalk, uniform below, gradually acquires a groove on one side, which eventuates in forking above. Of the two secondary stalks so formed, one is usually somewhat stronger than the other, and may, in its turn, be forked again at the top, so that two distinct flowers occur side by side. In specimen A this inequality in strength of the secondary stalks is very pronounced; the stronger branch of the primary fork in its turn forks again, but one of the products is excessively weak as compared with the other, and appears as a tiny rudimentary stalked flower seated laterally on the strong peduncle. Each of these luxuriant forking peduncles possesses two pairs of bracteoles. The anomaly is due to the special vigour and luxuriance of growth of the plants concerned.

CALANTHE DISEASED: *Enquirer*, J. B. The injury is due to a fungus, *Gloeosporium cinctum*. Sponge the plants with liver of sulphur at a strength of 1 ounce in 3 gallons water.

CALANDULAS: *Enquirer*, W. H. D. The pseudo-bulb sent, although small, is healthy, and in the ordinary course should have flowered. The

cause of failure must be in some way connected with the cultural treatment the plant received about the time the flower-spikes should have been produced. Probably too much water was given before, and at that time the plants were subjected occasionally to too low a temperature.

CELERY DISEASED: *B. K.* The disease attacking your plants is Celery heart-rot, which is caused by Botrytis. This fungus is usually introduced in the manure, and another season kainit should be mixed with the manure before it is used.

CHRYS-ANTHEMUMS FOR FLOWERING OUT OF DOORS IN SEPTEMBER AND OCTOBER: *F. H. L.* The following dwarf varieties are suitable for September flowering:—Leslie (yellow), Normandie (pink), Savoie (white), Goacher's Crimson (deep crimson), Nina Blick (chestnut red), and Rosie (brownish terra cotta). Taller varieties:—Roi des Blancs (white), Roi des Jaunes (yellow), Ethel Blades (chestnut), Hector (mauve pink), Nina Williams (rich crimson), and Mons. Bachmann (buff). Dwarf varieties for October:—Maxim (orange brown), Mrs. J. B. Wheeler (deep crimson), Perle Rose (bright rose pink), Bronze Soleil d'Octobre (bronzey fawn), Hermione (snow white), L'Argenteuilais (reddish crimson), Taller October varieties:—H. H. Crane (chestnut), Jason (pure yellow), J. Bannister (lemon, shaded copper colour), Lucifer (deepest crimson), Mrs. J. W. Scott (ivory white), and De la Guille (orange).

CORRECTION. In our notice of the Islington Cattle Show, the name Messrs. H. King & Co., Coggeshall, was given wrongly for Messrs. John. K. King & Son, of that town.

GARDENER'S TESTIMONIAL: *A Reader*. If your late employer addressed a testimonial to your present employer it was probably a personal communication, in which case you cannot claim it, although your present employer does not wish you to continue in his service. Your letter, however, is not perfectly clear. If we have misunderstood you, please write us again on the subject.

GENTIANA VERNALIS: *C. H. Forchione, Calfield*. It is unusual for this Gentiana to flower now, but the weather is uncommonly mild.

GRUBS ON CYCLAMEN: *R. H. E.* The grubs are weevils. See reply to J. H. in the "Answers to Correspondents" column for December 9.

INSECTS' EGGS: *J. J. H.* The egg masses are those of one of the Psocidae, small insects which in this country are harmless to fruit trees.

KAINIT AS A MANURE FOR GRASSES: *W. G.* Apply the material at the rate of $\frac{1}{2}$ ounce to the square yard in the spring. Better results would probably accrue from the use of some nitrogenous manure.

LANDSCAPE GARDENING: *Ambitious*. We do not know of any school of landscape gardening in this country, and, so far as our experience goes, Colleges which have horticultural classes either neglect the subject entirely or merely deal with it in the most elementary fashion. There is much truth in the general opinion that landscape gardeners are born rather than made, but, at the same time, many men who might be trained to take up this work with credit to themselves and advantage to the public, are prevented by the lack of any provision to help them in obtaining correct knowledge respecting the principles of design. It ought to be possible to study this subject at a school in which the teachers themselves would be landscape gardeners, for it is obvious that but little good would result from the teaching given by an ordinary drawing master. It is to be hoped that some day a school of landscape gardening will be established where these first principles will be under authoritative auspices. When these have been learned and much beside, there is still a vast amount of knowledge to be acquired before the student can hope to be trusted with the laying-out of important gardens. He must acquire an intimate knowledge of out-door trees, shrubs and flowers in order to select these with wisdom for the various positions in his newly-formed landscapes. Beyond everything else, it is necessary to travel abroad and study the famous gardens

on the Continent, such travelling to be undertaken after the College period. In your own case the only advice we can give you is to try to get lessons by correspondence from some practical landscape gardeners. This system might be possible if you insert an advertisement.

MEALY BUG IN VINERY: *A Reader*. By using the cyanide of potassium (poison) and other insecticides, it is possible to do a great deal in 12 months towards exterminating mealy bug, but admitting this much, we should scarcely feel in a position to blame a gardener because he failed to entirely exterminate the pest from old structures which have been infested for years and not fruits.

NAMES OF FRUITS: *Mrs. Goodden*. 1, Rymer; 2, Kedleston Pippin.—*E. Stone*.—Annie Elizabeth. Either one or the other of the books you mention would be useful.—*Fakham*. 1, Rosemary Russet; 2, Egremont Russet; 3, Passe Colman; 4, Princess of Wales; 5, Olivier de Serres; 6, Leon Leclerc de Laval.

NAMES OF PLANTS: *J. E. Ivis*: 1, a golden sport of Emerald Gem; 2, argentea variegata; 3, Emerald Gem; 4, latimaculata; 5, atropurpurea; 6, aurea; 7, palmata; 8, minima.—*J. Turner*. 1, Bridgesia spicata; 2, Pittosporum crassifolium; 3, Sterculia diversifolia; 4, Osmanthus ilicifolius.—*J. D. I. B., Devon*. Reineckia carnea, a charming little plant rarely met with in gardens.—*Rev. T. H. Hyde*. Luzuriaga radicans—*T. H. I.*, Pteris tremula; 2, P. hastata; 3, Polypodium aureum; 4, Davallia dissecta; 5, Cheilanthes lendigera; 6, Adiantum hispidulum.—*M. Mornodes Oberlanderianum*.—*Gad.*. 1, Salvia leucantha; 2, Cestrum (Habrothamnus) elegans.

PETROL: *A Reader*. Petrol would be most harmful, and the potting soil should be preserved from contamination at all costs.

PHOENIX CANARIENSIS: *L. C.* The fungus attacking your plants is one of the "smuts," (*Graphiola phoenicis*, and it is always found to be present wherever species of Phoenix are cultivated. The fungus also occurs on uncultivated trees. The best method of checking the disease is by sponging the plants with a solution of permanganate of potash.

PLUMS FOR PLANTING AMONGST GREENGAGES: *H. A.* Plant one tree each of the following varieties of Plums in the four blank spaces: Monarch, Victoria, Rivers' Early Prolific, and Pershore. These varieties produce flowers in plenty. Monarch blooms early, Victoria and Rivers' Early Prolific following, and Pershore later, whilst the Greengage flowers fairly early. It would be an advantage to place a hive of bees amongst the trees whilst the latter are in flower.

RHOODENDRONS: *J. G. W.* Rhododendrons will grow in any good soil provided that it does not contain lime to any appreciable extent. The situation you mention would probably suit them, unless it is so enclosed as to be draughty, in which case it would be difficult to get most kinds of plants to thrive. When Rhododendrons are in bloom, the flowers are liable to become damaged by strong winds in exposed or draughty situations.

RICHARDIAS DYING: *H. K.* There is no fungus present in the plants. The crown has been probably injured by the nicotine solution. Fumigation is a safer method for destroying aphids.

TENNIS COURT UNDER COVER: *W. F. B.* The floor of a covered tennis court may be made of asphalt, wood, cement, or gravel.

VIOLETS DISEASED: *Hadleigh* and *H. W.* The fungus present in your plants is *Cercospora violae*, which is favoured by too much moisture. Spray the plants with liver of sulphur, at a strength of 1 ounce in 4 gallons water, and afford them plenty of ventilation.

Communications Received.—*R. R. W. G. W. F.*, R. L. H., Edinburgh; *T. P. M. W. W. W. K. C.*, J. W. A. G. Essex; *C. T. J. MacP.*, W. R. A. G. J. R. P. A. G. H. F. Hardwick; *F. R. R. I. H. E.*, A. G. G. M. T. F. B. S. G. H. W. W. S. J. R. J. J. D. E. R. Brandon; *W. J. V. W. T.*, J. B. W. H. W. A. E. S. W. B. H. J. H. W. F. E. W. C. O. T. J. R. Enfield; *W. K. Graz*, R. P. B. H. A. W. P. E. M. M. C. E. (thanks for 2s. for R.G.O.F. Box).



THE

Gardeners' Chronicle

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LINKS WITH THE PAST.

PROFESSOR SEWARD'S book should be read by all who take a real interest in plants, whether they be botanists, horticulturists, or intelligent laymen. The problem with which the work is concerned is the origin of the British flora. This present-day assemblage of plants: whence and when did its constituents come hither? Some we know are recently-introduced aliens; others we have in common with the neighbouring continental shore; others again, though these are few in numbers, have no representatives immediately across the Channel, and may be sought all the ground over between Ireland or the Scottish Hills and some part of Europe as far distant as the Pyrenees. The questions opened up by a study of our flora are very numerous, and of them not a few are unanswerable. Yet Professor Seward shows how appeals to the geological record, to the floras of other parts of the world, to the means whereby plants are distributed from place to place, and to our knowledge of the changes of climate and configuration of land and sea, all help to throw light on the problem of the origin of our present-day flora.

When modern botanists take away from us one by one our trees, telling us that they are not natives but merely parvenus, of comparatively recent arrival, to the society of the British flora, it is consoling to have authority for believing that some

representatives of our old forest nobility still survive among us. Professor Seward allows us the Scots Pine, the Oak, Beech, Aspen, and Yew and several other trees as native to these islands.

In this connection Professor Seward propounds the interesting question—which of our present-day plants have title to boast of being the oldest inhabitants of the British Isles? Though properly cautious in such a matter of birth and origin, he allows that something is to be said on behalf of that curious collection of plants which occur only in the west of Ireland. Connemara, as is well known, possesses three kinds of Heath—St. Dabac's Heath (*Daboecia polifolia*), the Mediterranean Heath (*Erica mediterranea*); and E. Mackaii, which are known nowhere else in these islands nor in northern Europe, though they occur again in the Pyrenees. London Pride (*Saxifraga umbrosa*) grows in the south and west of Ireland and also in the Pyrenees. The Strawberry tree of Killarney has its nearest kin in the Mediterranean region. What is the meaning of this remarkable discontinuity of distribution? The most plausible explanation is that these plants are relics of a vegetation which, in an olden time, spread along a bygone coast-line stretching unbroken from Ireland to Spain. Such a claim to high antiquity extending back to pre-glacial times is not, however, allowed to escape challenge, and there are those who would maintain that the Strawberry tree, the London Pride, and the Heaths of Western Ireland are rather to be likened to shipwrecked mariners, which in comparatively recent post-glacial times, embarking on some unknown "ship"—a bird's back, a floating log—reached, "long wandering yet not lost" and by happy chance, the hospitable shores of Ireland.

Other of old-time invaders, like some of the men of these isles, have come out of the north, and are representatives of the Scandinavian flora. This flora, like Puck, putting a girdle round the earth, stretches continuously around the globe in the Arctic circle and makes an occasional dash for less-frigid quarters. In long-past time even this Arctic flora could not stand the rigours of an increasingly severer climate. Southward ho! it sped, and found congenial cold on the sides of mountains in lower latitudes. Thus some seek to explain the occurrence on the mountains of Scotland of such plants as *Silene acaulis*, *Dryas octopetala*, *Saxifraga oppositifolia*, and other Saxifragas, the Cloudberry (*Rubus Chamæmorus*) and the dwarf Birch. This Arctic Alpine element of our flora has some right then to share, with the Pyrenean element, the honours attaching to antiquity of origin, but, as in like claims among human beings, no small measure of uncertainty attaches to such.

Nevertheless, though confident answers to such questions can only be given by the incompetent, the discussion of the questions by so eminent an authority as Professor Seward has led to the production of a delightful book, which may be recommended unreservedly to all who care for plants.

PLANT NOTE.

EXACUM MACRANTHUM.

This plant, though by no means new, is still generally regarded as something of a rarity, perhaps one reason being the fact that very few growers have been able to grow the species with success. Lately, however, it has been exhibited well, with the result that many gardeners are taking up its culture. Flowering as it will, at practically any season of the year, within six or seven months from seed, it is capable of becoming one of our most popular greenhouse flowering plants.

Exacum macranthum is a variety of *F. zeylanicum*, and is practically a greenhouse annual. Its flowers, freely produced, are carried well above the polished, lightly-striped leaves, rendering it useful either for cutting or for decorative purposes. The individual flower, which measures about $1\frac{1}{2}$ inch in diameter, in many ways resembles a glorified *Saintpaulia ionantha*, but the colour is a deeper and richer blue, and this richness, contrasted with the large golden-yellow anthers, produces a very pleasing effect.

One of the peculiarities of the Exacum is its variation of colour under the influence of different lights. In the early morning the colour is of a light purplish tint, deepening as the day advances, to a rich blue, while in the twilight, when it is perhaps seen at its best, it changes to a lighter azure blue. Like all blue flowers, it appears violet in artificial light, but it is still very attractive.

The Exacum may be successfully raised from seed in a warm greenhouse. Being a native of Ceylon, it requires considerable heat and light. The plants should be kept as near the glass as possible in order that the growth may be sturdy and compact. Whilst the atmosphere should be moist, too frequent syringings must be avoided, as the water causes the tips of the leaves to decay. The plants should be potted very carefully to avoid bruising the roots, giving them the smallest shift possible, as over-potting is a very serious mistake. A mixture of two parts peat, one part loam, and one part leaf-mould and sand is suitable. The long shoots may be pinched back when desirable as the plants break away readily after pinching, and make symmetrical specimens, or they are equally effective for decorative purposes, when grown three or more in a pot and allowed to flower unchecked. C. H. Mearns.

AMERICAN NOTES.

CELERY DISEASE.

On p. 310 Mr. D. Calthorpe tells of his experience with Celery crops. I had supposed we had a monopoly of the disease (*Septoria Petroselinii* Apii) in this country. In any case, it has been a continuous fight for over 20 years to keep the crop after we have grown it, the disease spreading during the damp weather of early autumn with great rapidity. Stripping off the outer leaves did no good, but, on the contrary, weakened the plants.

Spraying with the copper solution will arrest the disease, and may be regarded as curative if taken in time, but my reason for writing is, that after trying very many kinds of Celery it has been found that Sutton's White Gem is immune, even part of a row escaped attack when planted next other varieties badly affected. This is classed as a mid-season variety, but we find it is the best keeping Celery; it has a sturdy habit and is a good exhibition variety. The flavour is not as good as some others, but we have succeeded at the situation where it was once a failure. Celery, Sutton's White Gem, and many are growing it exclusively. E. O. Orpel, Estate of C. J. H. Mearns, Phoenix.

FORESTRY.

EXPERIMENTS IN REGARD TO THINNING.

IN 1857 I planted six acres of land with 12,271 Larches, 800 Spanish Chestnuts, 100 Cornish Elms, 500 Scotch Elms, 500 Scotch Firs, 500 Austrian Pines, 50 Silver Firs, and 150 English Oaks. (See *Gardeners' Chronicle*, June 17, 1905, p. 34; December 8, 1906, p. 383; and March 6, 1909, p. 155.)

A friend advised me to practise no regular thinning, for if there are open spaces in the plantation and the other parts thick there is always a circulation of air, whether there be any wind or not. In the open spaces the sun rarifies the air, causing it to become lighter and consequently to rise. The air from the other parts of the wood comes in and takes its place, causing more air to pass the leaves than would be the case if the air were still. I have also tried an experiment with the Douglas Fir. I noticed in Lord Mansfield's plantation of *Abies Douglasii* that the trees were very much branched after the Larch planted between them had been cut down, leaving a pure Douglas Fir plantation. On my return from Scotland in 1885, I planted a Douglas Fir in a thick part of the wood, where it had just head room. Thirty years afterwards, Larches were planted near to it. The Douglas Fir has now become as large as the Larches around it and has its head above them, having grown as much in 20 years as the Larches have in 50 years.

This led me to plant 1,100 trees of Douglas Fir in three or four years among the Larches, which are of 50 years growth. They have grown very well and straight, and I hope to have specimens without strong branches. I have lately had 78 Larches cut down amongst the Douglas Firs to encourage the growth of the latter trees.

The following extracts from my log will show how I have carried out my friend's advice.

The trees were planted in 1857. September, 1864, made winding cuts through the field part of plantation from corner to corner, crossing in the centre, as the trees had made greater growth than in the part that had been an Oak wood, and the grass was killed under the trees. In June, 1867, I found that a *Picea Douglasii*, planted in 1864, which had been trodden down when the hunt went through the plantation, had thrown up a shoot. The tree was cut off above this shoot and the shoot grew into a tree, and is now finer than any Larch in the plantation. June, 1871, began a road for taking out the poles, cut 359 Larches, which was the first opening made in the main wood. 1872, continued road to near Bicton Mill. Cut through rock 14 feet high, and built up 9 feet to support road. 1875, finished roads. 1879, began to cut up the wood, nearly at right angles to the road, taking down two trees and leaving eight between each two cuts, making cuts 12 feet wide. 1882, made cuts 15 feet wide. At this time the 12 feet cuts had almost closed up. 1883, made short cut parallel to road above the last one at 48 feet distance. 1884, made a wide cut in field part as the grass was all killed under trees. 1886, Professor Ward and Gilbert Rogers, Conservator of Forests in India, advised me to make no more cuts for some years. In 1887 cut 124 Larches, mostly dead, in field part, and from this time until I made a 20 feet cut in field part many large trees died here, though no large Larch died in wood, where the blocks of trees were 8 trees one way and 12 trees the other. In 1892 cut off branches of Spanish Chestnut. In 1893 cut many dead Larch. May 7 to 21, four men cut vistas 20 feet wide in the direction in which trees had been planted all through the wood; made one cut same width in field part, since which very few Larch have died. August, raked up dead branches to the middle of each cut and burnt them. October 10 to November 25, planted three rows of trees in 20 feet cut 6 feet apart, centre row had every other tree Silver Fir, the remaining trees being Beech. Forest trees in cuts were left standing. May 13-22, 1879, cut Larch among taller trees,

many good for railing poles, 40 years' growth, but they whipped the larger Larches and injured them; thinned the Larch in thick parts to 8 feet apart, taking care to cut any Larch that had canker. 1893, under-planted Larch with Beech and Silver Fir. 1905, planted 400 Douglas Fir, 18 inches to 2 feet high, 6 feet apart, 26 feet from any tree. 1906, planted 493 Douglas Fir. 1908, planted 60 Douglas Fir. 1910, planted 332 Douglas Fir, 2 feet 6 inches high. 1911, cut 78 Larches, four Oaks, two Spanish Chestnuts among Douglas Fir. The Larch canker has done very little injury in this mixed plantation. Some trees cut this year had a little canker at the top, but as there was a clump of living branches below the canker this had not done much harm beyond killing the head. H. Rogers, Capt. R.N., Hartley, Plymouth.

LINUM NARBONENSE.

It is somewhat strange that this good Flax is not more often seen in gardens, considering that it is quite the handsomest of the blue forms. Though its habit is rather stiffer than that of *L. perenne*, the flowers are larger and of a deeper and truer shade of blue.

It may be that it suffers from a reputed



FIG. 188.—*LINUM NARBONENSE* IN MR. BOWLE'S GARDEN.

delicacy of constitution, but I think the charge is unfounded. Possibly in heavy clay soils it may be unhappy in winter, but most gardens can provide a well-drained, sunny position that should suit this plant. It does not often sow itself with me as *L. perenne* does, but then, on the other hand, clumps of it last in perfect health for many more years than those of the species that monopolises the name suggestive of long life.

The plant illustrated in fig. 188 has occupied its present position certainly for 10 years, and I have cut away large portions from it from time to time to keep it within proper proportions with its surroundings.

It is growing on a raised bank in the rock garden facing due south, and requires no attention beyond an occasional cutting down when it appears to be growing too leggy.

It is easily propagated, either by seeds or division, as it has a habit of running at the root and forming fresh tufts 1 inch or 2 inches from the main clumps. If the seed heads are cut off in July, the plant will last in beauty till the end of the autumn. E. A. Bowles, Waltham Cross.

THE LIFE OF SIR JOSEPH HOOKER.

(Continued from page 450.)

AFRICA.

HOOKE'S first acquaintance with any portion of the living flora of Africa was made on the outward voyage of the Antarctic Expedition, when he visited Cape Verde Islands in 1839 and made a collection of dried plants. He contributed to the "*Flora Nigritana*" in his father's *Niger Flora*, 1849, and his Cape Verde plants are included in P. B. Webb's *Spicilegium Gorgonea*, forming part of the same volume. But practically all of Hooker's work on the African flora was on collections made by others, chiefly by Gustav Mann; and partly by Charles Barter: Mann's predecessor of a decade earlier.

"On Barteria, a New Genus of Passifloraceæ," *Journal of the Proceedings of the Linnean Society*, vol. v. (1856), p. 14, t. 2. Named in memory of Charles Barter, a promising botanical collector and an early victim of the Niger Expedition.

Gustav Mann's collections included the first fruits of the mountain flora of West Tropical Africa, elaborated in the papers described below:

"On the Vegetation of Clarence Peak, Fernando Po, from the Plants Collected by Mr. Gustav Mann," *Journal of the Proceedings of the Linnean Society*, vol. vi. (1862). This is the earliest account of the vegetation of any of

the mountains of tropical Africa, outside of Abyssinia, and its main feature is the demonstration of the sameness of the temperate flora of the east and west, though separated by about 30° of longitude, equal to some 2,000 miles. The summit of Clarence Peak is upwards of 10,000 feet above the sea, and Mann made two ascents, one in April and the other in December. Only the plants collected at or above 5,000 feet are dealt with, and, contrary to expectation, the flora is comparatively poor—76 species belonging to 66 genera. Of the total 76, 37 are Abyssinian and 16 others closely allied to them, and no fewer than 17 were at that date known only to inhabit these two distant mountain regions. Thirty species are described as new, including four species of *Impatiens*, the genus that occupied several of the later years of Sir Joseph's long and busy life.

"On the Plants of the Temperate Regions of the Cameroons Mountains and Islands in the Bight of Benin Collected by Gustav Mann," *Journal of the Proceedings of the Linnean Society*, vol. vii. (1864), pp. 171-240, t. 1. This sketch of the vegetation of the mountains of Western Tropical Africa left little of importance botanically for subsequent travellers to discover. It embodies the data afforded by Clarence Peak,

Fernando Po, and carries the analysis and comparisons of the flora much further. The most remarkable features of this flora are: poverty, preponderance of Abyssinian types, considerable proportion of European species, paucity of South African genera and species, rarity of new or peculiar genera, and absence of St. Helena types. *Ardisiandra* is the only new genus described, and this is a member of the Primulaceæ with the habit of *Sibthorpia*. Gustav Mann was the first European to ascend these mountains, which rise to upwards of 13,000 feet; Captain Burton, following him and joining his expedition, afterwards claimed priority.

"A German Translation of the Introductory Part of Hooker's Paper on the Cameroons, &c.," appeared in Petermann's *Geographische Mittheilungen*, 1865, pp. 22-26.

"Description of Some New and Remarkable Species of *Ardisiandra* from West Tropical

Africa," *Transactions of the Linnean Society*, 2nd series, Botany, vol. ii. (1887), pp. 327-355, tt. 60-63.

On *Welwitschia*, a new genus of Gnetaceæ, *Transactions of the Linnean Society*, vol. xxiv. (1863), pp. 1-4, tt. 1-14. The discovery of this remarkable plant caused, perhaps, the greatest botanical sensation of the last century, not exceeded even by *Rafflesia*. It was first announced, with some particulars, in the *Journal of the Proceedings of the Linnean Society*, vol. v. (1861), p. 186; and Hooker's *Memoir* is one of his most elaborate and splendidly-illustrated productions, both in organography and anatomy. By an unfortunate combination of circumstances, Hooker's intention to commemorate the first discoverer has been frustrated, and following the most generally-accepted rule, *Welwitschia mirabilis* has to give way to *Tumboa Bainesii*. Thomas Baines, an artist and traveller, discovered the plant independently of Dr. F. Wel-

sperm of which the pollen is conveyed by insects to the ovule.

"On *Welwitschia*, a New Genus of Gnetaceæ," by Joseph Dalton Hooker. *Extracto e Noticias publicadas no Diario de Lisboa*, de 2 de junho de 1863. This is a free translation into Portuguese, with intercalated comments by Dr. E. Gomez.

"On *Fropiera*, a New Genus," *Journal of the Proceedings of the Linnean Society*, vol. v. (1861), p. 1, t. 1. In Bentham and Hooker's *Genera Plantarum*, this plant, a native of Bourbon and Mauritius, is classed as a genus anomalous, and placed at the end of the Myrtaceæ. Baillon subsequently identified it with *Pastoxylon*, Thou., and referred it to the Lythraceæ.

Hooker also elaborated the Melastomaceæ, the Cucurbitaceæ, and the Begoniaceæ for Oliver's *Flora of Tropical Africa*.

The Genera of South African Plants, &c. By W. H. Harvey, 1838. A second edition by J. D. Hooker appeared in 1868.

In 1871 Sir Joseph, accompanied by Mr. George Maw, of Crocus fame, and Mr. John Ball, the celebrated Alpinist, visited Morocco, and ascended the Great Atlas. An account of the journey is embodied in two letters by Sir Joseph to Sir R. I. Murchison, in the *Proceedings of the Royal Geographical Society of London*, 1871. There is also a reprint of the same, and a detailed, joint narrative.

Journal of a Tour in Morocco and the Great Atlas, by Sir Joseph Dalton Hooker and John Ball, 1878, octavo, pp. xvi. to 489, with illustrations and several appendices. This book of travel, giving the results of the observations of the authors and their companion, George Maw, was mainly written by Ball, and it is worth reading again in the light of recent events. Hooker contributes three appendices, namely, on "Some Economic Plants of Morocco," and "Comparisons of the Flora with that of the Canary Islands," and that of "The Mountains of Tropical Africa." Ball worked out the systematic account of the plants, which was published under the title, "*Spicilegium Floræ Marocanæ*," *Journal of the Linnean Society*, vol. xvi. (1877-1878), pp. 281 to 742, plates 9 to 28. The enumeration contains 1,627 species, of which 165 are peculiar, and many are described for the first time. No new genus was discovered. A separately-paged reprint (pp. 41) of the appendices was issued. W. Botting Hemchly.

(To be continued.)

VEGETABLES.

TREATMENT OF ASPARAGUS BEDS.

THERE is a great diversity of opinion amongst gardeners as to the best way of treating partially-exhausted Asparagus beds. I take the liberty of stating how we treat the beds here, which are very old, perhaps from 20 to 30 years, but still bear heavy crops of first-rate Asparagus. I will begin by saying that we give no manure whatever of any kind in autumn, as is very often done. I remember, as a lad, often seeing heavy coats of manure placed on the top of the beds at the beginning of winter, and this again covered with soil. Such applications on heavy, retentive soils were washed down to the crowns by heavy downpours of cold rain, and caused the death of a great many of the weaker stools. Owing to the mildness of the climate here, we use no covering when the plants are resting. About the end of February, all the soil is carefully forked off the beds into the alleys, going as near as possible to the crowns of the plants. A heavy dressing of dung and decayed seaweed is then spread over the beds, which are marked off and the soil from the alleys shovelled over the dung on the beds. The subsequent treatment consists in keeping the beds free from weeds, and giving one or two applications of common salt, which, besides acting as a stimulant to the Asparagus, helps to keep the beds clean. In districts where severe frosts occur, a good dressing of light stable manure spread over the beds in winter would, in my opinion, be better than heavy applications of manure. Heavy manuring when the plants are at rest is something like waking up a sleeping ox to be crammed. D. Calthorpe, *The Gardens, Ballyheigue Castle, Ballyheigue, Co. Kerry*.



FIG. 18. BEGONIA "GLORY OF CINCINNATI": COLOUR OF FLOWERS, PINK.

(This variety obtained the RILEY Award of Merit at a meeting held on December 5, see p. 421 note.)

Africa," *Transactions of the Linnean Society*, vol. xxv. (1865), pp. 185-187, t. 14. Three species are described, including the gigantic and striking *A. Goldiana*, which has flowers about 2 feet long and 1 foot across.

"On the Sub-alpine Vegetation of Kilimindjaro," *Journal of the Linnean Society*, vol. xiv. (1874), pp. 141-146. This is an account of a very small collection of dried plants made by the Rev. Charles New at the instigation of Sir John Kirk, and it was the first consignment from any snow-clad mountain in tropical Africa. The general affinities of the plants were considered to be South African, but two or three species were identified with Cameroon species and four with Abyssinian. A much larger collection from the same mountains is dealt with by Prof. D. Oliver in the *Trans-*

witsch, and sent excellent drawings to Kew, and Hooker, suspecting it might be a second species, provisionally named it *Welwitschia Bainesii* in the *Gardeners' Chronicle*, 1861, p. 1,008. Then Welwitsch's full name, *Tumboa strobilifera*, followed in the same publication, 1862, p. 71. Soon complete materials were received, and there was no difficulty in deciding that only one species was represented. The floral structure of *Tumboa* has been differently interpreted by botanists. Hooker was of opinion that the ovule was included in a double integument, whereas other investigators held that the outer integument was of the nature of an ovary, of which it has all the appearance. Both male and female flowers are provided with a distinct perianth, and the anthers are singular in being three-celled. It is asserted that *Tumboa* is the only living gymno-



The Week's Work.

THE KITCHEN GARDEN.

By JAMES LUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

A TROUBLESOME SEASON.—The past summer proved the most troubles in my experience. The early part of the year was favourable, and at the end of June the rainfall here amounted to 9.36 inches, the average for this district during the same period being 10.35 inches; thus for the first half of the year we were but little more than 1 inch under the average. But by the end of September there was a great deficiency of rain, the rainfall for the nine months up to that period being only 11.80 inches as compared with an average of 17.54 inches. Thus during the time when vegetables should have grown freely, it was a difficult matter to keep the plants alive. It was not until August, however, that they began to show serious effects from want of moisture, when some of them failed completely. Taking vegetables in alphabetical order, as affected by lack of moisture, Broad Beans planted early were a success, but those intended for a succession were a failure. Broad Beans are an important crop in these gardens: the pods are gathered while quite young, as the Beans are not larger than ordinary Peas when served at the Royal table. French Beans were plentiful throughout the season, and this was due in a large measure to having planted them in deeply-trenched ground, and to applying mulches as soon as the plants were large enough to benefit by their application. We grew many of the standard varieties, but by far the best Bean of the season was "The Belfast." This is a new variety, and throughout the season it produced large quantities of the pods of the finest quality. The only variety of Cabbage that was unharmed by the drought was "Glory"; this is a new main-crop variety and the heaviest in proportion to size known to me. Cauliflowers sown in the autumn and planted early in April were a perfect success, and heads were plentiful up to the end of July, when the spring-raised plants usually furnish a succession. But these latter failed, although water was applied almost daily. The best variety to withstand the heat and drought was Halloween Giant, which, as its name indicates, comes in late in the season. Carrots sown in spring were successful, but sowings made in May and June gave only poor results. Those sown in July, however, grew freely during the autumn, and we have now a large quantity of the best Carrots we have had at Frogmore for some years. The varieties are "Monument" and Model. Celery, being a moisture-loving plant, suffered seriously in consequence of the dry season, for although we were most attentive with regard to watering and managed to keep the soil moist about the roots, the atmosphere was too dry for the production of first-class Celery. Clayworth Pink, Veitch's Superb White and Standard Bearer were good, but Major Clark's Red and Early Rose were inferior. Lettuces were good and plentiful until the end of July, when the season proved too hot and dry for them. After that date, Sutton's Mammoth White Cos, Dickson's Iceberg and All-the-year-Round served us well. The plants were grown on a border facing east, and were well supplied with water. Spring-sown Onions are smaller than usual, but the bulbs are keeping well. We did not thin the crop, owing to the dry season, but we have at present about four tons of sound bulbs, which promise to keep good until next year's crop is available. Autumn-sown Onions were the best I have seen at Windsor, and like those sown in spring, were never watered during the season. Parsley seed sown early germinated badly, owing to insufficient moisture in the soil, but from sowings made late in July we have a very fine crop of this herb. Early-sown Peas were all that could be desired. Our first sowing of the variety Pilot was made on January 4 on a south border, and we gathered the first bushel of pods on June 2. From that date, until August 15, we were enabled to provide a daily supply of pods, but from

the middle of August we had a great difficulty in procuring an occasional dish from Autocrat and Rearguard, although both varieties are to be recommended for autumn supplies. Early varieties of Potatoes gave good returns. Sutton's May Queen is a favourite variety here, and besides being our best early sort, the tubers keep in good condition until the end of February. Late varieties were free from disease, but owing to the drought, the crop was a very light one. Our heaviest and best crops of late Potatoes were procured from Daniel's Sensation and Eclipse. Turnips were plentiful until August, when it became a difficult matter to keep the plants alive. Those sown for a winter supply were burned, but from later sowings, which in ordinary seasons are intended to produce Turnip Greens in spring, we have a very good crop of roots, due to the mild weather in autumn. All green crops are looking well. Winter Cabbage and Savoys are plentiful, also Brussels Sprouts. Broccoli plants are not so large as usual, but we have a very fine lot of Veitch's Autumn Broccoli. This variety does well at Frogmore, and is largely grown for early winter supplies of this vegetable. There should be no scarcity of green vegetables, provided the weather remains mild, but if severe frost sets in many of the plants will be injured. Tomatoes in the open have been a great success, Sutton's Best of All and Dickson's Open Air giving the best results.

THE FLOWER GARDEN.

By R. P. BECKETT, Gardener to the Earl of Harrington, K.T., Tisbury, Wiltshire, and East Linton.

FLOWER-GARDENING IN A DRY SEASON.—In some respects the flower gardening of 1911 was a disappointment. The summer flowers bloomed earlier than usual, but there was a partial failure for two or three weeks in August, at which time the outlook was not encouraging. In September, when slight rain fell, the plants improved, and the autumnal display was beyond expectation. On the whole, the season was of a nature that no one would wish to experience again, yet, in our own case, the only plant that quite failed and had to be replaced was the charming, pink-flowered Godetia Schaminii fl. pl., but Dahlias and Chrysanthemums produced only a few perfect flowers until autumn. Though Antirrhinums suffered severely, they revived in a brief time, but in some gardens they were given up as past recovery; in others the flower-spikes were all removed, leaving the beds green for weeks. Here, every second or third day for about three weeks in August, the flowers that had gone to seed in the intervals were cut off, but always enough remained to make a little show, and soon the secondary spikes came on, these later blooms being finer than the early ones. The plants that had not all been raised on the same dates, and this helped to continue the bloom. I thought the newer Fire King surpassed Orange King and Apricot in the "Intermediate" section. Lobelia Waverley, notwithstanding the heat and drought, was exceptionally fine, and stood to the last, but surface-dressings and moisture applied had, no doubt, something to do with the result. The selected strain of Lobelia cardinalis grown here was also very fine. Two beds which attracted much attention were planted with Emperor Larkspur (azure-blue), carpeted with a dwarf Ageratum of the same shade. Larkspurs generally suffered from the extreme heat, but they, too, revived, and produced later crops of flowers from the old spikes. Annual Asters were glorious, and of these the large-flowered and common single varieties please many, but for massing the large-flowering Ostrich Plume section is superior to all others. The Quilled varieties also group satisfactorily; Lemon, French White, Modesty, and Purple King being the best of this section. It was a great year for Pelargoniums, Mme. Crousse (Dryley) being particularly refined in colour, and the old Henri Jacoby holding its own with the newer varieties. Of the plants generally to be found in mixed borders the Hollyhock was a great success. Phlox, however, suffered from the intense heat, and as a result, the mid-season varieties, such as Le Soleil and Le Mahdi, lasted only a few days, but later ones were satisfactory. Boule de Feu is one of the best of the scarlet flowered. E. Campbell, Selma,

G. A. Strohlein, and Gruppen Konigin are a few varieties of value for massing. I should like to repeat what I have frequently written about the value of the African Marigold for massing. Not only are the double Orange and Lemon to be commended, but in the singles, when kept apart, we have definite forms of much beauty. The hybrid forms of Gladiolus primulinus, though rather small-flowered, possess a neat habit, whilst the colours are pretty and attractive. I also like Astilbe rutilans and rubens out of several hybrids. Senecio tanguticus pleased very much, and must be reckoned with for grouping, and especially for mixing with other suitable plants, such as Aconitum autumnale, the best of the genus. Helianthus Miss Melish has also been a great feature in the autumnal borders, producing flowers in succession for several weeks. The perennial Asters associate well with it, and these also have been amongst the flowers of the year. Roses have been exceptionally fine, and at the time of writing (December 16) they are still fairly abundant. Carnations, although short-lived, have seldom been more satisfactory, and the winter-flowering section has firmly established its right to be employed in the summer and autumn garden. The greater number of Montbretias were disappointing, and Violas in general were not a success. Here, John Quartan and Pilgrimage continued to flower till autumn. The heat favoured the less hardy shrubs; Romneya Coulteri, for instance, flowered continuously, but in general flowering shrubs were less floriferous than in some years. Now, Christmas Roses, Lonicera fragrantissima, Snowdrops, and Narcissus peeping above ground proclaim the near advent of another year.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VIKARY GIBBS, Aldenham House, Hertfordshire.

A REVIEW OF THE PAST SEASON.—The past season was an ideal one for the majority of fruits grown under glass, although the long spell of tropical weather increased the work in this department, and the dry, hot conditions favoured the increase of red-spider, even where syringings were practised frequently. The value of giving the trees and houses a thorough cleansing in winter is apparent in such a season as the past. Probably no crop is awaited with greater interest than the earliest forced Strawberries, and these were in almost all cases exceptionally fine. The crops of early Peaches and Nectarines were satisfactory, both from pot trees and those planted out. The value of pot trees is recognised more and more each year. In a garden I visited last summer in Oxfordshire was a house containing 40 trees of Peaches and Nectarines, some of them 26 years old, and all in pots. Each tree on an average bore from 40 to 60 fine fruits, and the trees had not been repotted for six years, but only top-dressed about the middle of October. These trees furnished an almost regular supply of Peaches and Nectarines over a period of three months. What will be the effects of last year's hot weather on next season's crops is more or less conjectural, for, although the value of well-ripened wood is generally recognised, some consider that the over-ripening of Peach wood is not beneficial. The season was suited to the Fig, which enjoys plenty of sun-heat and atmospheric moisture. The fine Fig trees in pots, exhibited by Mr. Hudson, whilst lecturing on "Pot Figs" (at a recent R.H.S. meeting, see p. 343), demonstrated what fine results can be obtained from pot culture. Other kinds of fruit trees in pots, including Apples, Plums and Cherries, promise well for next season, fruit buds being plentiful and the wood thoroughly matured. From the excellent Grapes seen at the exhibitions it is apparent that the season has been suitable for vines. Black Grapes finished splendidly, and the bunches are keeping exceptionally well. The fine weather permitted an abundance of ventilation at the time the berries were ripening, and to this is due, in a great measure, the berries keeping so well. Excellent crops of Melons were obtained from plants in heated frames as well as in houses, the tropical weather suiting this fruit. The weather was very favourable for Pineapples, and the Pine fruits were exceptionally good flavoured. Wasps were never more plentiful, and it was only with the greatest difficulty that they were prevented from eating or spoiling all the fruit in the houses.

AN AUTOMATIC WATER FINDER.—Messrs. MANSFIELD & Co., of Liverpool, have devised an automatic water finder, which has been tried by the Bombay Department of Agriculture, with results that, though not absolutely conclusive, indicate—according to the *Agricultural Journal of India*, January, 1911—an almost certain success. It reveals the presence of underground flowing springs as low as 1,000 feet. The instrument works by measuring the strength of the electric currents which are constantly flowing between earth and atmosphere. The currents are always strongest in the vicinity of subterranean water courses, the flowing waters of which are charged to a certain degree with electricity. (*Bulletin of Scientific Experiments*, 2, No. 6, 1911.)

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of this paper, sent as early in the week as possible and be signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unasked illustrations, or to publish material by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, and of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
House Trees, Fruit Trees, Perennials, &c., at 12.20, at Stevens's Auction Rooms, 38, King Street, Covent Garden.

MONDAY AND FRIDAY—
Herbaceous Plants and Hardy Bulbs, Lilliums, &c., at 12; Roses and Fruit Trees, at 1.50; at 67 & 64, Cheapside, E.C., by Frotheroe & Morris.

WEDNESDAY—
House Trees and other Hardy Bulbs, Perennials, &c., at 12; Roses and Fruit Trees, at 1.50; Palms and Plants, at 5, at 67 & 64, Cheapside, E.C., by Frotheroe & Morris.

FRIDAY—
Choice Imported Burmese Dendrobies, Established Orchids, &c., at 67 & 64, Cheapside, E.C., at 12.45.

AVERAGE MEAN TEMPERATURE for the ENSUING WEEK deduced from observations during the last Fifty Year at Greenwich.—38° 3'.

AIR TEMPERATURES.—
LONDON.—Wednesday, December 27 (6 P.M.) Max. 50; Min. 39°.

GARDENERS' CHRONICLE OFFICE, 41, WELLINGTON STREET, COVENT GARDEN, LONDON.—Forecast, December 28 (10 A.M.) Bar. 29.4". Temp. 52°. Weather—Dull.

PROVINCES.—Wednesday, December 27 Max 53; Min. 39° S.W.; Min. 39° Lincoln.

Events of the Year.

The closing year will be memorable in these islands for the Coronation of King George V. and the magnificent summer, this latter, unfortunately, attended by one of the most prolonged droughts in recent records. The Coronation in June affected most of our readers in one way or another. The brilliant ceremonies attending it created a great demand for plants and flowers, and for a brief period the market-growers found their resources not more than equal to the requirements of the trade. In some cases it may be feared that this prosperity was counterbalanced by the unusually short duration of the London season, which terminated soon after the completion of the Coronation ceremonies, and by the railway strike and other labour troubles which occurred later in the year. Nevertheless, we have reason to believe that the growers of decorative plants have experienced a better trade than usual and more liberal profits than have characterized recent seasons.

The remarkable summer affected gardeners more than most classes; it was the chief factor that dominated their work, influenced their plans, and in a great measure determined their crops. Whilst the glorious amount of sunshine might in other circumstances have been an unmixed blessing, the deleterious effects of the accom-

panying drought were so obvious, not only in orchard and fields, but also in gardens, that the gloomiest views were entertained in respect to the crops, even among those raised in gardens where the tillage is more perfect and the crops are under greater control than are those on the farm. But misfortunes always appear most serious when they press directly upon us, and such was the case in respect to the drought. At the close of the year we can look back with some satisfaction, in the knowledge that the worst fears were not realised. Take the fruit crops, for instance: such crops as failed, unmistakably owed their loss not to the summer drought, but to the unsuitable weather conditions which prevailed at the season when the trees were in flower or the fruits setting, as in Pears, Peaches, and Nectarines. Apples set a very liberal crop, and the harvest was at least equal to the average yield. Certain varieties contributed to this result in a greater measure than others, and well-tilled soils of good depth showed their superior value as compared with gardens less favourably situated; but, taking varieties and situations collectively, the general crop of Apples was not only plentiful, but the fruits excelled in size the anticipations of fruit-growers. The worst pest that affected the Apple crop was the codlin moth, a scourge that always engages the attention of cultivators in some degree, but which attacked more fruits in the past season than we ever remember. Cox's Orange Pippin, which succeeded unusually well, appeared to be the subject of special attack; in some cases every fruit on a tree was found to contain a maggot. For this visitation the season was partly to blame; for, as was pointed out in these columns in September by *A Southern Fruit Grower*, the great heat caused two broods to be hatched. Concerning the keeping qualities of Apples, the reports we have received are conflicting. In some cases they are said to be keeping well, whilst in many others they exhibit quite an opposite character. Small fruits suffered severely from the drought; in many gardens the fruit actually withered on the bushes.

The Potato crops were lighter than usual, and although it might have been expected that the brilliant summer would prevent the spread of fungous diseases, we received reports which showed that the common disease (*Phytophthora infestans*) caused considerable trouble, and warty disease asserted itself in localities where this malady had not been previously detected.

The most serious effects of the drought were to be seen in the check to all crops of the Cabbage tribe. In August and September there was such a scarcity in the markets as is rarely witnessed, and very high prices were paid in not a few instances where, owing to some local circumstances having compensated for the absence of rain, satisfactory crops were obtained. Later, when the influence of autumn rains made itself felt, the supplies gradually increased; and in December, when the Brussels Sprouts and Savoys became available, the London supply, at any

rate, appeared equal to that of an ordinary season.

The year has not been marked by any horticultural event of outstanding importance, such, for instance, as will characterize the year now about to open, but much work has been done with a view to forwarding the interests of the forthcoming International Exhibition. The Royal Horticultural Society has held two exhibitions, in addition to the fortnightly shows in the Society's Hall at Vincent Square, which appear to be increasingly successful. The first of the special exhibitions was held in the Temple Gardens, as usual, and it attracted crowds of visitors. Queen Alexandra showed the interest Her Majesty is known to have in gardening by visiting this show, and the success of the exhibition, from the popular point of view, was everything that could be desired. At the same time, it must be added that the visitors again experienced the discomforts inseparable from a show of this nature, for which no better arrangements can be made than those possible in the restricted area available on the Thames Embankment.

The summer show in the Olympia building was regarded by most people as something of an experiment, and it is not likely to be repeated. Circumstances were against the success of this exhibition; the Coronation festivities were already over and many people had left London on account of the great heat. Apart from these facts, there was the further disadvantage that the great glass structure was most inappropriate for the tropical conditions that prevailed, though it may be well suited for an exhibition in wet weather. Moreover, those responsible for the arrangements of the exhibition failed to take ordinary measures to adapt the building to the purpose for which it was employed. For these reasons the show was not an unqualified success even as a spectacle, though there were individual exhibits of great taste and wonderful variety, and, as showing the resources of British horticulture, the display was amongst the most exhaustive witnessed for a very long time.

The numerous special societies have held exhibitions of their favourite flowers, chief amongst which were the Rose, Sweet Pea, and Chrysanthemum shows. The National Rose Society has continued its prosperous career, and shown increased activity in various directions. Its shows have been successful, and its publications have met with the appreciation of all Rose cultivators. The National Sweet Pea Society's exhibition was as successful as hitherto, notwithstanding the somewhat sensational show at the Crystal Palace, at which exhibition the proprietors of the *Daily Mail* offered a first prize of £1,000. The National Dahlia Society, though in less prosperous conditions than formerly, has made efforts to revive popular interest in the Dahlia by the holding of a conference and in other ways. The North of England Horticultural Society has been most energetically engaged in its attempts to awaken a greater interest in gardening in the northern counties, and for the



PRIMULA LICHIANGENSIS

AS PHOTOGRAPHED BY MR. FORREST IN ITS NATIVE HABITAT.

stimulus it has given the industry it deserves every sympathy. Efforts were made early in the year to inaugurate a National Daffodil Society, but the promoters of the scheme eventually agreed to accept certain overtures made by the Royal Horticultural Society for the holding of a competitive Daffodil show in London in 1912. It may be assumed that the results of this exhibition will be awaited before any steps are again considered for carrying out the original project.

The fourth genetic conference was held in Paris in September. The reports, necessarily brief, published in these columns, clearly showed that the event attracted much attention in scientific circles, and there is not the least doubt but that, when the proceedings are published, the papers will contribute to the elucidation of that most important subject, heredity.

In respect to educational subjects, it will be remembered that, early in the year, the Reading University College published a valuable and suggestive report of a deputation which visited America and Canada in 1910 for the purpose of enquiring into the methods of agricultural teaching in those countries. As bearing on a kindred subject, it should be noted that a recent issue of this journal contained the announcement that a committee has been asked by the Royal Horticultural Society to enquire into the question as to the desirability of instituting a National Diploma for gardeners. The result of the deliberations of this committee will be awaited with interest, and we may venture to hope that some way may be found of providing gardeners with increased facilities for acquiring knowledge and of raising their status in the public estimation.

In attempting a review of the events of any particular year there must always be the painful necessity of noticing the losses horticulture has suffered by the hand of Death. The list this year is not lighter than usual. Early in the season occurred the death of Sir Charles Dilke, one of the principal proprietors of this journal, and son of one of the four original founders. Amongst many others who have done good work and furnished brilliant examples are such well-known names as Sir Joseph Hooker, James Douglas, Dr. Harry Bolus, Charles Foster, Victor Lemoine, J. H. Hart (of Trinidad), B. Latour Marliac, Edouard Andre, J. J. Willis, Colonel Beddome, Simon A. de Graaff, A. Weeks, William Earley, George Woodgate, Robert Laird, and the Rev. Alan Cheales. Many of those who have passed from our midst were men whose ripe experience was invaluable, but unfortunately their knowledge, for the most part, is no longer available for the common good, because it has not been committed to paper. Nevertheless, progress is being made, and those who are still capable of useful efforts should be stimulated by the records of the work already accomplished by men who had fewer opportunities of every kind than are now available to those who really desire to take their part in furthering the world's progress.

OUR ALMANAC.—We shall shortly send a *Gardeners' Chronicle* Almanac for the year 1912. In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical and Allied Societies, or any of our correspondents, will send us **IMMEDIATE INFORMATION** of all fixtures for the coming year.

OUR SUPPLEMENTARY ILLUSTRATION.

Concerning the subject of our Supplementary Illustration, *Primula lichiangensis*, Forrest, Mr. GEORGE FORREST writes us as follows:—This species is a handsome rock plant, one of the many forms of that most variable and widely-distributed species, *Primula cortusoides*, L. It is most closely related to *P. Veitchii*, Duthie, from which species it differs in only a few minor details, such as its inflated calyx base, the fewer flowers borne by the umbel, which is usually simple, and in the under-surface of the foliage being less densely tomentose. The species attains a height of 6 to 14 inches, and is a native of the eastern flank of the Lichiang Range, N.W. Yunnan, where it grows amongst dwarf scrub on boulders, and on the ledges of steep limestone cliffs at an altitude of 10,000 to 10,500 feet. The situations are usually dry and shady, with a southern exposure, in a much-enclosed side valley, and, though I found the species was abundant enough in that particular locality, I never discovered it elsewhere on the range, nor in any other part of the province. The flowers are fragrant and vary greatly in the depth of colouring, from light rose to what might almost be called crimson in some specimens, and the eye is greenish-yellow. There is also great variation in the size and form of the foliage.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of this Society will take place on Tuesday, January 9. There will be no lecture on this occasion.

BRITISH GARDENERS' ASSOCIATION.—A meeting of this association will be held on Friday, January 5, at 7.30 p.m., in the Technical Institute, Altrincham, Cheshire, when an address upon the "Advantages of Joining the B.G.A." will be given by the general secretary, Mr. J. WYLLIERS.

MRS. E. F. HAZELTON.—The garden staff at Knowsley Hall, Prescott, have presented Mr. HAZELTON, the gardener, with a silver inkstand and walking stick, on his leaving Knowsley to take up the duties of gardener at North Myms Park, Hatfield, in succession to Mr. C. R. FIELDER. It will be remembered that Mr. FIELDER was recently appointed gardener to Miss WILLMOTT, at Warley Place, Brentwood.

"JARDINAGE."—We have already remarked on this new gardening publication. The second issue contains a full-page plate of M. VIGOR, M. ALBERT TREPET and M. ANDRÉ CHATENAY, the president, vice-president and secretary of the National Horticultural Society of France. In No. 3 the coloured cover illustration of Blue Hydrangeas is very effective. Some photographic views of the Paris Autumn Show are given. In particular, we notice a photograph of Mr. T. STEVENSON and his group, the best that has yet appeared in the French Press.

SALT AS A FUNGICIDE.—In a contribution to MORTIMER'S *Plant & Garden Zoology* the use of common salt as a fungicide is recommended. For cleaning glasshouses a solution of salt and soda in hot water is said to be very effective, and cracks and corners of propagating and other cases may be sprayed with a 2 per cent solution of salt (about $\frac{3}{4}$ ounces per gallon). Cuttings and plants may be dipped in a solution of half this strength, though for the more tender subjects it is better to use a solution of about 1 ounce of salt to one gallon of water.

RETIREMENT.—Mr. ROBERT DAWES, head gardener and forester for the past 30 years at Templenewsam, Leeds, will resign that position early in the New Year. Mr. DAWES's friends will be gratified to know that his long service is being handsomely acknowledged by his present employer, the Hon. E. F. L. Wood, M.P.

GARDENERS' SOCIAL EVENING.—The 15th annual social gathering of the gardening staff of the Royal Gardens, Kew, will be held at the Boat House, Kew, on Friday, January 12, commencing at 7 p.m. The hon. sec., Mr. G. W. BUTCHER, 34, Alexandra Road, Richmond, will be glad to hear from past Kewites, intending to be present, on or before January 4.

SIR TREVOR LAWRENCE, BART.—The esteemed president of the Royal Horticultural Society attains his 80th birthday on the 30th inst. Our readers will join us in offering him hearty congratulations and good wishes.

SPRAYING FOR THE GOOSEBERRY-MILDEW.

In our report last week of the conference held under the auspices of the North of England Horticultural Society, a printer's error made Mr. EMPTAGE state that the amount of sulphate of copper for spraying in winter should be 11 lbs. to 25 gallons of water. It should have read 1 lb. of copper sulphate to the same quantity of water.

AMERICAN GOOSEBERRY-MILDEW ON RED CURRANT BUSHES.

Although in comparison with the previous year there has been less of this mildew on the shoots of Gooseberry bushes in Cambridgeshire, there has been nevertheless a marked development of the fungus on Red Currant bushes, particularly on the variety known as Ruby Castle. In 1908, one case of disease on Red Currants was recorded in this county, but until the present year there was no recurrence of the mildew on this kind of bush. During the past summer no fewer than 59 cases of the disease have been reported on Red Currants, most of which, however, were only slight. The first attack on Red Currants was recorded on July 19, or two months after the appearance of the summer stage of the fungus on Gooseberry bushes. The diseased Currant bushes were in all cases in the vicinity of mildewed Gooseberry bushes. To judge from the absence of the mildew from Red Currants during the two previous years, and from its relatively late appearance this year, it certainly looks as if the fungus had adapted itself to a host which hitherto has been practically immune from attack in this particular area. It is remarkable that, in a season which has been characterised by a decrease in intensity of the disease on Gooseberry bushes, the fungus should have attacked Red Currants much more than in previous years. In the case of Red Currant bushes, the mildew affects the stalks and blades of the leaves more severely than the stems; whereas, on Gooseberry bushes, the reverse more frequently occurs. Perithecia or "winter spores" were abundantly developed on the mildewed leaves of these Red Currants. This adaptation of the fungus to live on another host is of interest in relation to the problem of producing varieties of Gooseberry bushes which shall be immune from the attacks of American mildew. When one considers the question of producing varieties of economic plants which shall be immune from the attacks of certain parasitic diseases, one must bear in mind the power of adaptability possessed by these parasites; thus, knowing that American Gooseberry-mildew may adapt itself, under certain conditions, to live on Red Currants, one recognises that the solution of the problem of breeding varieties which shall be permanently immune from the attack of the fungus may be fraught with considerable difficulty.

BACK TO THE HILLS.

(Continued from p. 473.)

AMONG THE PRIMULAS.

My experiences in the Fleimsor Thal taught me not to depreciate my chances of finding the hybrid *Primulas*. Bitterly did I regret having cravenly renounced in a premature despair, my visit to the district where minima meets spectabilis, and produces the lovely range of hybrids called *P. facchinii* and *P. dumoulinii*. Eagerly did I set forth on the needle-in-a-bundle-of-hay adventure, which is the search for *Primula Juribella*, long out of flower. This species dwells with its parents on the limestone Alps under the Cimon della Pala in the Southern Dolomites. And my search opened auspiciously

grey tufts of *Campanula Morettiana*, hanging out of crevices in rock not so wholly unnegotiable as that of the Schlern, and *Potentilla nitida* now approaching the full beauty of its heyday. But still no sign of *Primula minima*, nor any likely place for it. I wandered along the stony ridges up and down, having no notion where to hunt for *P. Juribella*, whether in crevices with its father, or in turf with its mother. Obviously, turf was indicated, but there was at present no turf, and no mother either. The clouds and rain drove fiercely across me, and blotted out the world. Now and again they would lift, and the Cimon della Pala would unfold in all its magnificent horror. It is the most terrible peak in the Dolomites, if not in any range. I do not even except the Viso and the Matterhorn. Five

it, you can tell it at a glance, for its leaves have lost the green and lucent look of minima, and are more dusty grey with the glue-glands, that are its heritage from *tyrolensis* (though, indeed, it has not nearly so many); they are usually a trifle broader than the broadest forms of foliage in minima, and draw out to an oval, more neatly denticulated, instead of ending abruptly with the violent horny jags of minima. In size, it seems pure minima, and is a variable hybrid, even in this, its only recorded station. I found one form much bigger than the rest, with leaves larger, longer, and broader, suggesting a secondary cross with *tyrolensis*. Of the flowers I cannot yet speak; none remained. I can only say that I found the remains on one piece of a two-flowered scape.



FIG. 190.—LALLO-CATTLEYA NELIA (L.C. DOMINIANA LANGLEYENSIS × C. LABIATA).

(Awarded R.H.S. First-class Certificate on December 13.)

(See p. 475.)

[Photograph by J. Gregory.]

in the discovery that all the rock was thickly clustered with *P. tyrolensis*, though of minima I had seen as yet no sign. *P. tyrolensis* does not grow so vast and wide as its cousin *P. Allionii*. It forms, however, dense, serried sheets all up and down the sheer crevices of the rock, each crown separable from the rest, the whole in a flat crowd of rosettes, instead of in the radiating uniform cushions in which *Allionii* depends from the cliffs and grottos of Tenda. The bloom of *tyrolensis* had completely passed by this time. I only succeeded in finding one or two lingering corollas on a cold and northerly cliff. These stemless flowers, large and rosy and ragged, have a rare charm, even though they may not succeed in rivalling, quite, the wide splendours of *P. Allionii*.

There were other treasures here, too; great

thousand feet of absolutely bare, sheer rock, shooting up in a naked needle like the finger of death. Poised among the clouds that day, it looked even higher than it is, and more awful.

I came at last, in the mist, on a grassy slope. In another minute mother minima appeared. I now climbed like an aged crone, conning every leaf I crossed, for there was no longer any sign of flower; and five minutes had not elapsed before I lit on a longer leaf than usual—more oval, darker, more glandular. It was *Primula Juribella*, of course. And after that I had no further difficulty. The hybrid is as common, almost, as its mother; growing with its mother, in and out of tufts of *Silene Pumilio* (for here occurs a small and sudden outcrop of igneous rock). It is very much nearer to minima than to *tyrolensis*; but when once you have sighted

Much more difficult to find than this are the two named hybrids produced by minima and *hirsuta* in the Brenner district. When blooming time is over, indeed; for while in flower *P. Kellereri*, *P. Forsteri*, and *P. Steinii* are so gorgeous that they could almost be seen from half-a-mile away. In early August, however, the difficulty of finding them is still further complicated by the abundance and the polymorphic luxuriance of *P. minima*. For this is one of the few species belonging to the Eastern Alps and ranging tentatively west. As I know it, *P. minima* becomes more and more abundant, more and more stalwart, as one approaches the centre of its kingdom in the Eastern Alps. In the highest moors of the Brenner it simply makes the turf, and develops foliage so ample and strong as to be barely recognisable for the

most part of its outlying regions—so far in the end, indeed, always to be waking one to suspicions that such and such a *Primula* leafed mass cannot be merely pure minima. Just down below on the rocks by the river, hangs *hirsuta*, but (as in the case of P. Juribella) P. Forsteri and P. Kellereri are only to be sought among the wide tussocks of their mother in the heathery herbage, in and out of the mats of *Azalea alpina*. And though the two species grow so commonly and so close, it was only after an hour's ransacking of countless knolls of minima, varied by a dozen false starts over some specially wide-foliaged form, that at last, as I paused on a slope in despair, I found that my unconscious eyes were resting full on *Primula Kellereri*. Again, as with *Juribella*, there can be no mistake, when once the plant has been sighted. Both *Kellereri* and *Forsteri*, though closer, the one to *minima*, the other to *hirsuta*, are very like forms of minima on first glance. But as *Kellereri* has its affinities to *hirsuta*, you recognise it clearly at first glimpse among minima. It is larger, with a more ramifying habit. Its leaves are bigger, broader, spatulate, dentate, wholly distinct, and they stand quite apart from the glossy glabrous green of minima's, in being of a darkish grey-green, thanks to their glandular inheritance from *hirsuta*. Very much more difficult to tell is glorious *Forsteri*, which five minutes later I found growing half-a-yard away. For, though not so large as *Kellereri*, it is very like it, yet among the gigantic minima of these hills it is nothing much out of the common; until a difference in the tone of its green strikes your attention. For this, though quite yellowish, as in minima, glossy-looking and vivid, is somehow not the same. Look closer, and you see the leaves have lost their shine through being slightly glandular, and that they draw gradually to a toothed oval end—two points that finally differentiate the plant from minima. Both these hybrids (though one might do better in flower time) appeared to me to be painfully uncommon. Much search only showed me one colony of P. Kellereri, and two of P. Forsteri. But I almost dare suspect that something like this might be found among the extraordinarily fine type of apparent minima that covers all the mountain-side in a rippling mantle of shining verdure.

HIGHER UP AMONG THE PRIMULAS.

Heedless of a herd of four-and-twenty gigantic bulls that capered round me (agricultural friends dispute the probabilities of their having been all bulls, but they were), I pursued exhaustive researches into the distribution of *Primula Kellereri* and P. Forsteri, and then continued my upward way in hope of P. Huteri and P. salisburgensis. As one climbs the mountain, P. minima gets more and more abundant, until in the end it literally possesses all the slope. But by this time P. glutinosa had almost wholly passed out of flower. And as the glutinosa \times minima hybrids (as distinct from the minima \times glutinosa hybrids) run so very close in foliage to P. glutinosa, I felt that the passing of the flowers left me without much chance of success. The climb, too, was not a fertile one: over piles of gaunt granitic debris, in which there was no consoling sign either of *Saxifraga Rudolphiana* or of *Ranunculus Trautmannii*, both of which I had been led to hope abounded in the Brenner Alps. However, I continued toiling up towards the snow, and as I toiled the few flowers of *Primula glutinosa* became less few, until in the end I came out on a little marsh, where, among the violet beauties of the parent, glowed fiercely the amethystine richness of its children.

I repeat it: the names P. Huteri and P. salisburgensis are as arbitrary as those of P. Floerkeana, etc. There is an enormous differentiable range between the innumerable children of P. minima and P. glutinosa. One possible drawback of my suggested system for adumbrating by mathematical formulae the exact relationship of each of these hybrids, under one name, would

be the fearful quadratics that would be required to express precisely the parentage of any given hybrid. (As for the logarithms that would be wanted to express Epi-Sophro-Lælio-Cattleya, imagination boggles at them, and no printer would endure them.) But so much I would admit, or suggest: that P. salisburgensis does imply glutinosa \times minima; whereas P. Floerkeana means minima \times glutinosa; of this latter cross I saw no sign on the Brenner, and of the former none in the Fleimser-Thal. As P. Floerkeana can be described as a minima with the height and habit and many-flowered scape of glutinosa, so P. salisburgensis might be called a diminished glutinosa with the colouring of minima. But, of course, even so much differentiation as this would be unfair, if it pretended to be authoritative or rigid.

Primula "Huteri-salisburgensis" is a lovely little plant. It seems to me most especially to affect very wet places—stones and shelves over which water is trickling much more freely than glutinosa would like or minima endure. The little leaves are in size and shape reminiscent of P. glutinosa, and stand up, as in the same way, on the other hand, they are of a much lighter green, much less glandular, and more oval, with a fine little denticulation at their rounded tip. The flowers are like those of glutinosa, but a trifle larger, fewer on the shorter scape, and usually of a fulminating hot blue-violet. But all this range of hybrids is endlessly variable: the one called Huteri is said to approach nearer to minima, and that called salisburgensis to glutinosa. I have not seen either, whose provenance I do not know, which is, to all appearance, almost pure minima, with two or three glutinosa flowers on a stemless scape, and those flowers of a very clear lavender blue. The habit of type salisburgensis in these water-runnels is quite intermediate: it forms wide mats of scattered little colonies, ramifying from each other in all directions, and growing up together, after the style of P. glutinosa, but not so densely congregated.

Much less tangled and obscure is the next great range of hybrids produced by P. minima. To find it sharing mountains with P. Clusiana you have to go far, far east, into the limestone Alps of Austria. And here P. minima is even larger, freer, and more universal than on the Brenner chain; its forms are infinite. It shares its limestone ranges (precisely the same limestone ranges as those of Ingleborough, writ thrice as large), with other wonders, too, for in August that whole enormous mountain is one rosy sheet of *Dianthus alpinus*, filling all the grass with the unbroken refugence of its masses; and only a little earlier the higher moorland blushes with miles of *Primula minima*, interspersed with the celestial little fountains of *Campanula alpina* and the violet stars of the genuine *Viola alpina*. On the cliffs and on their slopes are mats of beautiful *Potentilla Clusiana*, like a pearl-white version of P. nitida, and *Primula Auricula* gleams among mats of P. Clusiana (but does not interbreed), and *Campanula pulla* disputes the calcareous debris (calcareous, mark it!) with *Ranunculus alpestris* and *Thlaspi* and *Viola biflora*, in black humus among blocks of limestone such as that beloved of *Polypodium calcareum* under Ingleborough.

The real domain, however, of *Primula Clusiana* begins higher yet, on the open moorland of the upper grassy slopes. Here it grows exactly like its cousin *spectabilis* on *Rosa Longa*, though not in quite such serried masses. It has a similar, though distinct, splendour, of rich, great, rosy flowers in heads, their lobes so deeply cloven as to give a fringed effect. It was long over, of course, when I saw it, but I suspect it to be being, perhaps, quite so inordinately profuse of blossom as *spectabilis* in nature, though in the garden they neither of them have a fault. At these elevations, however, *Clusiana* reigns supreme, to the overshadowing of the lowlier minima: I had ranged much ground with much care before at last I came on P. intermedia, their case before at first glance, is a lovely hybrid. P. intermedia, at first glance, is a concise, tuft, tiny *Clusiana* of an exquisite neatness like a *Sempervivum*; but in an instant the eye is caught by little, spiny jags round the end of the broad, oval, shiny leaves (it has been

called P. spinulosa), which, in real *Clusiana* as in all the arthritica, are invariably entire. However, the toothing of the leaves is almost the whole of minima's contribution to P. intermedia, which has *Clusiana's* enormous flowers above a rosette of half the size of *Clusiana's*, with something almost more Rose-like and attractive than even the neatness of minima. From what I saw of the hybrid, it is, however, certainly variable: and I suspect the degree of its difference from *Clusiana* (there is no doubt that it does, or can, yield secondary crosses. But P. intermedia clearly is *Clusiana* \times minima; I found nothing that suggested to me minima \times *Clusiana*). Whereas, in all the other minima crosses, minima is usually the dominant member of the parent. It seems less powerful, indeed, with arthritica than with erythrodosum; for Facchinii and Dumoulinii equally suggest the motherhood of *spectabilis*. In habit, P. intermedia forms immense loosely-ramified colonies, deriving at once from the densely-ramified habit of minima, and *Clusiana's* tendency to independent individuality.

Reverend Praeger

FLORISTS' FLOWERS.

BORDER CARNATIONS.

CARNATIONS in pots now placed in cold frames will almost certainly, in some varieties, have "spot" on the foliage. Such leaves and others that have turned yellow should be carefully removed, also all kinds of dirt and rubbish about the plants. Even though the soil about the roots may appear to be dry, no water should be given meanwhile, as much moisture is always harmful in winter. The chief value of frames in the case of border Carnations is to ward off rains; even in frosty weather a current of air is beneficial, frost being harmless so long as everything about the plants is dry. Those planted out may also require attention in the matter of cleaning, and, should the plants need support, they should be secured to short sticks. Late-planted layers are apt to become loosened in the ground through frost, and it may be necessary to make the soil firm about each; but those planted early in autumn and now well established will not need this attention. B.

SCOTLAND.

EDINBURGH MARKET GARDENERS AND THE WAVERLEY MARKET.

A PROPOSAL made by the Edinburgh Market Gardeners that tickets of admission to the Waverley Market shall be issued to the trade at a charge of 10s. 6d. per annum, this to include the right to admission for a short time previous to that of the general public, has been before the Markets Committee of the Edinburgh Corporation.

Another suggestion is that 2s. 6d. per annum shall entitle the holder of a ticket to early admission only, and that the ordinary charges be paid on entry to the market. The committee recommended that no change be made in the existing practice, and at a meeting of the Town Council on December 19 this recommendation was adopted. *Correspondent*.

LÆLIO-CATLEYA NELLA.

OUR illustration in fig. 190 represents a finely-formed and brightly-coloured hybrid, obtained by Messrs. James Veitch & Sons from a cross effected between L.-C. *Dominiana langleyensis* and C. *labiata*. The rich colour of L.-C. *Dominiana* is intensified in this hybrid, and the flower exhibits the good shape of the best form of C. *labiata*. The sepals and petals are a bright rose-colour with a silvery veining and a white spot at the base of each segment. The lip is of a glowing ruby-red, with thin, yellow lines from the base. The plant was awarded a First-class Certificate at the Royal Horticultural Society's meeting on December 19 last.

HOMERIA COLLINA.

THIS pretty South African bulb is very rarely met with in gardens. It is curious that the *Homeria* should be so uncommon in cultivation, as it is one of the hardiest of Cape bulbs, being far more vigorous than the *Sparaxis* and increasing much more rapidly, while it is more reliable than the *Ixia* and will prove thoroughly robust in a border in which the *Ixia* will not persist for two seasons. The flowers are charming in colour, of a soft apricot-pink flushed with orange, with a bright-yellow eye surrounded by faint purple pencillings. They are about $2\frac{1}{2}$ inches in diameter, and four or more are carried on an arching stem about 30 inches in length; the leaves are 4 feet in length and rather more than $\frac{1}{2}$ inch in breadth. The flowers close in the evening and remain shut during the night. A large colony, with a hundred or more fully expanded bloom-spikes furnishes a beautiful picture in the May sunshine. The plant increases very rapidly, a small clump given me a few years ago, and lifted three years later, had made 250 bulbs. The chief drawback in the cultivation of the *Homeria* arises from the fondness of snails for the succulent stems. The snails climb to a height of 18 inches to 2 feet, and then eat the stems through. A nightly watch is necessary when the flower-stems are about a foot in height in order to destroy these pests, as the bed will be flowerless unless their energy is checked. The brilliant *Sparaxis* Fire King (crimson with a golden centre), *S. grandiflora*, and *Freesia refracta alba* are grown in the same border as the *Homeria*, and they associate well. The *Homeria* succeeds best in a light, sandy soil in a raised border in front of a south wall. The species was introduced into this country in 1793. *Wyndham Fitzherbert*.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE PROPOSED GARDENERS' DINNER.—In answer to Mr. Divers (p. 460), I may say that Friday in the first week of the exhibition was at first definitely fixed for the dinner, but it was found that the directors of the exhibition had arranged a banquet in the Horticultural Hall on that day. The Horticultural Hall has been placed at the committee's disposal for the dinner, but this offer has not yet been accepted officially. Then, again, very many gardeners would not be present at the exhibition on the first three days, because of the admission prices, there being no reduction for gardeners' wives. It is hoped to fix the dinner as early as 6 p.m. on the Saturday. *A. Dean*.

THE COLOURING OF APPLES.—Allow me to correct an error in the printing of my article of last week on this subject. The beginning of the second paragraph reads:—"It is not known with certainty whether colouring is affected by influences outside the fruit or exclusively by those acting from within." This makes me say the converse of what I intended. The latter part of the sentence should read thus:—"affected by influences outside the fruit exclusively, or partly by those acting from within." No one can suppose that internal influences alone cause colouring, and such a supposition is inconsistent with statements preceding the erroneous sentence, as well as with what follows. *A Southern Grower*.

The article on this subject (see page 447) by *Southern Grower* is, like all his writings, most suggestive and instructive. Would he kindly allow me to suggest that colour depends largely on the available supplies of potash in the soil? I am no horticultural chemist, but I have used my own eyes and "picked the brains" of several "old hands," and I consider that *Southern Grower* might give us some interesting information on this point. Burnt-clay soil, for example, produces a rich colour in Apples. *J. Bernard Hall, Bowdoin, Maine*.

THE REMOVAL OF TREE STUMPS.—I was interested in the article on p. 411 on this subject. A great deal of dynamite is used in the gold, iron, copper and manganese mines here, and we use a great deal of Nobel's gelatine dynamite in the gardens and woods, for blasting both rock and wood. Five years ago we made a new herbaceous border, and over 300 detonators were employed, the number of cartridges used with each detonator varied from half a cartridge to five whole ones; generally from one to two will remove a large quantity of rock or wood, provided it has a solid place and too much work is not given to the charge used; in this matter discretion is required. I cannot understand 2 lbs. of 3 lbs. being used for a stump: it would be a very large one for us to use more than 1 lb. For an Oak tree cut into 6 feet lengths and 2 feet in diameter, we should not employ more than 1½ to 2 whole cartridges. In the case of a stump it would often be found that no more than a 6-inch hole can be obtained when half a cartridge will suffice. The work is carried out here by the garden men, and I may say I have never seen more than two misfires, which are

blasted, as it will simply blow out with a tremendous report, and when examined a hole will be found at the weakest point. We find that the explosion is affected by damp; therefore, when working in damp situation, both charge and fuse should be well greased before they are inserted, and it is better to fire as quickly as possible. If used in a bore hole, completely under water, no packing is required. Thoroughly grease, insert the fuse, leave the end just above the water; fire quickly, giving as little time as possible for any water to penetrate and cause misfire. *F. G. Brewer, Bryntirion Gardens, Dolgelly*.

TRAINING YOUNG STANDARDS.—Young standard fruit trees are too often left to take care of themselves after they have been planted and staked, the notion being somewhat prevalent that a standard is a naturally grown tree, as distinct from a trained dwarf tree. One cannot go far along a country road in most parts of the country without seeing instances of the bad results of this mistaken notion. When a standard is planted just as it arrives from the



FIG. 191. HOMERIA COLLINA IN A DEVONSHIRE GARDEN.

very dangerous indeed, and should be treated with great care. We never withdraw a charge, it being far better to put another charge above it, after very carefully removing a little packing, taking great care not to venture near the other detonator, as, should a metal tool by chance touch this, it would certainly explode, with fatal results to the operator. Careful packing is the best prevention of misfires. Should the fuse get twisted or crushed, the fire may stop at this point. It must be understood that a licence is necessary for using dynamite, and very stringent precautions against accidents are enforced by law. On a place where an explosive is only required occasionally, I should always use black blasting powder; it can be used with far less danger, and merely requires ramming tightly with an iron rod and hammer. Place the fuse on the powder, then ram a little more powder in, taking care not to crush the fuse, then pack with paper, moss or turf, as in the case with dynamite, and should a misfire occur there is no danger in removing the packing down to the powder and inserting a fresh fuse with a little more powder, when, if no damp is present, it should fire without further trouble. I do not see how an unsound stump could be successfully

nursery, and nothing more is done to it, little growth is usually made the first year, and that of a feeble character, while some of the buds on the previous year's growth become fruit-buds. If these latter produce fruit the following season, the slender branches are weighed down and never regain their proper position. The tree is, to some extent, already injured irretrievably, unless it is taken in hand by a man who knows his business. The vexed question as to the relative merits of pruning a tree at planting or deferring it for a year need not be entered upon here, except so far as to state that one or the other course must be adopted, instead of neither, the first essential being to form a tree that shall be able to support a crop of fruit without injury to itself. If the whole of the growth is left unpruned as it comes from the nursery, on the ground that the amount of root formation is proportionate to the number of buds which break out in the spring, there is, at least, something to be said for the method, but the mistake is made when the branches are not cut back after the first year to one-half or one-third of their original length, so that the vigorous formation of the future framework of the tree may begin the following year.



